(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number
WO 2004/085408 A1

(51) International Patent Classification[7]: C07D 239/47, 401/14, 405/14, 409/14, 413/14, 417/14, 403/14, A61K 31/513, 31/5377, A61P 25/28

(21) International Application Number: PCT/JP2004/004320

(22) International Filing Date: 26 March 2004 (26.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-126021 26 March 2003 (26.03.2003) JP
2003-126022 26 March 2003 (26.03.2003) JP

(71) Applicants (*for all designated States except US*): MITSUBISHI PHARMA CORPORATION [JP/JP]; 6-9, Hiranomachi 2-chome, Chuo-ku, Osaka-shi, Osaka, 5410046 (JP). SANOFI-SYNTHELABO [FR/FR]; 174 AVENUE DE FRANCE PARIS, F-75013 (FR).

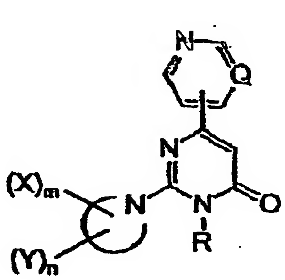
(72) Inventors; and
(75) Inventors/Applicants (*for US only*): WATANABE, Kazutoshi [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP). UEHARA, Fumiaki [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP). HIKI, Shinsuke [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP). YOKOSHIMA, Satoshi [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP). USUI, Yoshihiro [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP). OKUYAMA, Masahiro [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP). SHODA, Aya [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP). ARITOMO, Keiichi [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP). KOHARA, Toshiyuki [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP). FUKUNAGA, Kenji [JP/JP]; c/o MITSUBISHI PHARMA CORPORATION, TOKYO OFFICE, 2-6, Nihonbashi-honcho 2-chome, Chuo-ku, Tokyo, 1038405 (JP).

(74) Agent: SIKS & CO.; 8th Floor, Kyobashi-Nisshoku Bldg., 8-7, Kyobashi 1-chome, Chuo-ku, Tokyo, 1040031 (JP).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,

[Continued on next page]

(54) Title: 2, 3, 6-TRISUBSTITUTED-4-PYRIMIDONE DERIVATIVES



(I)

(57) Abstract: A pyrimidone derivative having tau protein kinase 1 inhibitory activity which is represented by formula (I) or a salt thereof, or a solvate thereof or a hydrate thereof; useful for prventive and/or therapeutic treatment of diseass such as neurodegenerative diseases (e.g. Alzheimer disease); wherein Q represents CH or nitrogen atom; R represents a C_1-C_{12} alkyl group; the ring of Formula (I): represents piperazine ring or piperidine ring; each X independently represents a C_1-C_8 alkyl group, an optionally partially hydrogenated C_6-C_{10} aryl ring, an indan ring or the like; m represents an integer of 1 to 3; each Y independently represents a halogen atom, a hydroxy group, a cyano group, a C_1-C_6 alkyl group or the like; n represents an integer of 0 to 8; when X and Y or two Y groups are attached on the same carbon atom, they may combine to each other to form a C_2-C_6 alkylene group.

WO 2004/085408 A1

KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

DESCRIPTION

2,3,6-TRISUBSTITUTED -4-PYRIMIDONE DERIVATIVES

Technical Field

The present invention relates to compounds that are useful as an active ingredient of a medicament for preventive and/or therapeutic treatment of diseases mainly caused by abnormal activity of tau protein kinase 1, such as neurodegenerative diseases (e.g. Alzheimer disease).

Background Art

Alzheimer disease is progressive senile dementia, in which marked cerebral cortical atrophy is observed due to degeneration of nerve cells and decrease of nerve cell number. Pathologically, numerous senile plaques and neurofibrillary tangles are observed in brain. The number of patients has been increased with the increment of aged population, and the disease arises a serious social problem. Although various theories have been proposed, a cause of the disease has not yet been elucidated. Early resolution of the cause has been desired.

It has been known that the degree of appearance of two characteristic pathological changes of Alzheimer disease well correlates to the degree of intellectual dysfunction. Therefore, researches have been conducted from early 1980's to reveal the cause of the disease through molecular level investigations of components of the two pathological changes. Senile plaques accumulate extracellularly, and β amyloid protein has been elucidated as their main component (abbreviated as "Aβ" hereinafter in the specification: Biochem. Biophys. Res. Commun., 120, 855 (1984); EMBO J., 4, 2757 (1985); Proc. Natl. Acad. Sci. USA, 82, 4245 (1985)). In the other pathological change, i.e., the neurofibrillary tangles, a double-helical filamentous substance called paired helical filament (abbreviated

as "PHF" hereinafter in the specification) accumulate intracellularly, and tau protein, which is a kind of microtubule-associated protein specific for brain, has been revealed as its main component (Proc. Natl. Acad. Sci. USA, 85, 4506 (1988); Neuron, 1, 827 (1988)).

Furthermore, on the basis of genetic investigations, presenilins 1 and 2 were found as causative genes of familial Alzheimer disease (Nature, 375, 754 (1995); Science, 269, 973 (1995); Nature. 376, 775 (1995)), and it has been revealed that presence of mutants of presenilins 1 and 2 promotes the secretion of Aβ (Neuron, 17, 1005 (1996); Proc. Natl. Acad. Sci. USA, 94, 2025 (1997)). From these results, it is considered that, in Alzheimer disease, Aβ abnormally accumulates and agglomerates due to a certain reason, which engages with the formation of PHF to cause death of nerve cells. It is also expected that extracellular outflow of glutamic acid and activation of glutamate receptor responding to the outflow may possibly be important factors in an early process of the nerve cell death caused by ischemic cerebrovascular accidents (Sai-shin Igaku [Latest Medicine], 49, 1506 (1994)).

It has been reported that kainic acid treatment that stimulates the AMPA receptor, one of glutamate receptor, increases mRNA of the amyloid precursor protein (abbreviated as "APP" hereinafter in the specification) as a precursor of Aβ (Society for Neuroscience Abstracts, 17, 1445 (1991)), and also promotes metabolism of APP (The Journal of Neuroscience, 10, 2400 (1990)). Therefore, it has been strongly suggested that the accumulation of Aβ is involved in cellular death due to ischemic cerebrovascular disorders. Other diseases in which abnormal accumulation and agglomeration of Aβ are observed include, for example, Down syndrome, cerebral bleeding due to solitary cerebral amyloid angiopathy, Lewy body disease (Shin-kei Shinpo [Nerve Advance], 34, 343 (1990); Tanpaku-shitu Kaku-san Koso [Protein, Nucleic Acid, Enzyme], 41, 1476 (1996)) and the like. Furthermore, as diseases showing neurofibrillary tangles due to the PHF accumulation, examples

include progressive supranuclear palsy, subacute sclerosing panencephalitic parkinsonism, postencephalitic parkinsonism, pugilistic encephalitis, Guam parkinsonism-dementia complex, Lewy body disease and the like (Tanpakushitu Kakusan Koso [Protein, Nucleic Acid, Enzyme], 36, 2 (1991); Igaku no Ayumi [Progress of Medicine], 158, 511 (1991); Tanpakushitu Kakusan Koso [Protein, Nucleic Acid, Enzyme], 41, 1476 (1996)).

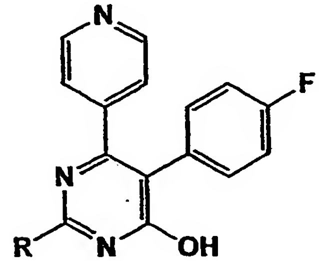
The tau protein is generally composed of a group of related proteins that forms several bands at molecular weights of 48-65 kDa in SDS-polyacrylamide gel electrophoresis, and it promotes the formation of microtubules. It has been verified that tau protein incorporated in the PHF in the brain suffering from Alzheimer disease is abnormally phosphorylated compared with usual tau protein (J. Biochem., 99, 1807 (1986); Proc. Natl. Acad. Sci. USA, 83, 4913 (1986)). An enzyme catalyzing the abnormal phosphorylation has been isolated. The protein was named as tau protein kinase 1 (abbreviated as "TPK1" hereinafter in the specification), and its physicochemical properties have been elucidated (Seikagaku [Biochemistry], 64, 308 (1992); J. Biol. Chem., 267, 10897 (1992)). Moreover, cDNA of rat TPK1 was cloned from a rat cerebral cortex cDNA library based on a partial amino acid sequence of TPK1, and its nucleotide sequence was determined and an amino acid sequence was deduced (Japanese Patent Un-examined Publication [Kokai] No. 6-239893/1994). As a result, it has been revealed that the primary structure of the rat TPK1 corresponds to that of the enzyme known as rat GSK-3 β (glycogen synthase kinase 3 β, FEBS Lett., 325, 167 (1993)).

It has been reported that A β, the main component of senile plaques, is neurotoxic (Science, 250, 279 (1990)). However, various theories have been proposed as for the reason why A β causes the cell death, and any authentic theory has not yet been established. Takashima et al. observed that the cell death was caused by A β treatment of fetal rat hippocampus primary culture system, and then found that the TPK1 activity was increased by A β treatment and the cell death by

A β was inhibited by antisense of TPK1 (Proc. Natl. Acad. Sci. USA, 90, 7789 (1993); Japanese Patent Un-examined Publication [Kokai] No. 6-329551/1994).

In view of the foregoing, compounds which inhibit the TPK1 activity may possibly suppress the neurotoxicity of A β and the formation of PHF and inhibit the nerve cell death in the Alzheimer disease, thereby cease or defer the progress of the disease. The compounds may also be possibly used as a medicament for therapeutic treatment of ischemic cerebrovascular disorder, Down syndrome, cerebral amyloid angiopathy, cerebral bleeding due to Lewy body disease and the like by suppressing the cytotoxicity of A β. Furthermore, the compounds may possibly be used as a medicament for therapeutic treatment of neurodegenerative diseases such as progressive supranuclear palsy, subacute sclerosing panencephalitic parkinsonism, postencephalitic parkinsonism, pugilistic encephalitis, Guam parkinsonism-dementia complex, Lewy body disease, Pick's disease, corticobasal degeneration, frontotemporal dementia, vascular dementia, acute stroke and traumatic injuries, brain and spinal cord trauma, peripheral neuropathies, retinopathies and glaucoma; non-insulin dependent diabetes (such as diabetes type II), and obesity, manic depressive illness, schizophrenia, alopecia, cancers such as breast cancer, non-small cell lung carcinoma, thyroid cancer, T or B-cell leukemia and several virus-induced tumors.

As structurally similar compounds to the compounds of the present invention represented by formula (I) described later, compounds represented by the following formula (A) are known:



(A)

wherein R represents 2,6-dichlorobenzyl group, 2-(2-chlorophenyl)ethylamino group, 3-phenylpropylamino group, or 1-methyl-3-phenylpropylamino group (WO98/24782). The compounds represented by formula (A) are characterized to have 4-fluorophenyl group at the 5-position of the pyrimidine ring and a hydroxy group at the 4-position, and not falling within the scope of the present invention. Moreover, main pharmacological activity of the compounds represented by formula (A) is anti-inflammatory effect, whereas the compounds of the present invention represented by formula (I) are useful as a TPK1 inhibitor or a medicament for therapeutic treatment of neurodegenerative diseases, and therefore, their pharmacological activities are totally different to each other.

Patent Document 1: WO 00/18758
Patent Document 2: WO 01/70728
Patent Document 3: WO 01/70729

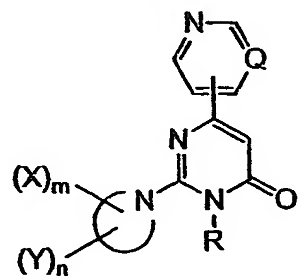
Disclosure of the Invention

An object of the present invention is to provide compounds useful as an active ingredient of a medicament for preventive and/or therapeutic treatment of diseases such as Alzheimer disease. More specifically, the object is to provide novel compounds useful as an active ingredient of a medicament that enables radical prevention and/or treatment of the neurodegenerative diseases such as Alzheimer disease by inhibiting the TPK1 activity to suppress the neurotoxicity of Aβ and the formation of the PHF and by inhibiting the death of nerve cells.

In order to achieve the foregoing object, the inventors of the present invention conducted screenings of various compounds having inhibitory activity against the phosphorylation of TPK1. As a result, they found that compounds represented by the following formula (I) had the desired activity and were useful as an active ingredient of a medicament for preventive and/or therapeutic treatment of

the aforementioned diseases. The present invention was achieved on the basis of these findings.

The present invention thus provides 3-substituted-4-pyrimidone derivatives represented by formula (I) or salts thereof, or solvates thereof or hydrates thereof:



(I)

wherein Q represents CH or nitrogen atom;

R represents a C_1-C_{12} alkyl group which may be substituted;

the ring of:

represents piperazine ring or piperidine ring;

each X independently represents

$X^1 - X^2 -$

wherein X^1 represents an oxo group; a C_1-C_8 alkyl group which may be substituted; a C_3-C_8 cycloalkyl group which may be substituted; an optionally partially hydrogenated C_6-C_{10} aryl ring which may be substituted; an indan ring which may be substituted; an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total; an aralkyloxy group; a group represented by –N(Ra)(Rb) wherein Ra and Rb are the same or different and each is hydrogen, a C_1-C_4 alkyl group which may be substituted, an aralkyl group which may be substituted, a C_3-C_8 cycloalkyl group which may be substituted, an aryl group which may be substituted, C_1-C_8 alkylcarbonyl group which may be

substituted,

C_3-C_8 cycloalkylcarbonyl group which may be substituted,

aralkycarbonyl group which may be substituted,

C_6-C_{10} arylcarbonyl group which may be substituted,

C_1-C_8 alkysulfonyl group which may be substituted,

C_3-C_8 cycloalkylsulfonyl group which may be substituted,

aralkysulfonyl group which may be substituted,

C_6-C_{10} arylsulfonyl group which may be substituted,

C_1-C_8 alkyloxycarbonyl group which may be substituted,

C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,

aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

aralkylaminocarbonyl group which may be substituted,

N,N'-diaralkylaminocarbonyl group which may be substituted,

N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_6-C_{10} arylaminocarbonyl group which may be substituted,

N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,

or an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected

from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total; or Ra and Rb together with the adjacent nitrogen atom form a 4 to 7 membered heterocyclic ring which may further contain 1 to 4 groups selected from an oxygen atom, a sulfur atom, N-Rc (wherein Rc represents a hydrogen atom, a C_1-C_4 alkyl group which may be substituted, an aralkyl group which may be substituted, C_3-C_8 cycloalkyl group which may be substituted or an aryl group which may be substituted,

C_1-C_8 alkylcarbonyl group which may be substituted,

C_3-C_8 cycloalkylcarbonyl group which may be substituted,

aralkycarbonyl group which may be substituted,

C_6-C_{10} arylcarbonyl group which may be substituted,

C_1-C_8 alkysulfonyl group which may be substituted,

C_3-C_8 cycloalkylsulfonyl group which may be substituted,

aralkysulfonyl group which may be substituted,

C_6-C_{10} arylsulfonyl group which may be substituted,

C_1-C_8 alkyloxycarbonyl group which may be substituted,

C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,

aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,
aralkylaminocarbonyl group which may be substituted,
N,N'-diaralkylaminocarbonyl group which may be substituted,
N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,
C_6-C_{10} arylaminocarbonyl group which may be substituted,
N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,
or an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total),
a carbonyl group, a sulfinyl group or a sulfonyl group in the ring, and said 4 to 7 membered heterocyclic ring may optionally be fused with an aryl group which may be substituted;

X^2 represents a bond, a carbonyl group, a sulfinyl group, a sulfonyl group, an oxygen atom, a sulfur atom, a C_1-C_4 alkylene group which may be substituted or N-Rd (Rd represents a hydrogen atom, a C_1-C_4 alkyl group which may be substituted, an aralkyl group which may be substituted, C_3-C_8 cycloalkyl group which may be substituted or an aryl group which may be substituted,
C_1-C_8 alkylcarbonyl group which may be substituted,
C_3-C_8 cycloalkylcarbonyl group which may be substituted,
aralkycarbonyl group which may be substituted,
C_6-C_{10} arylcarbonyl group which may be substituted,
C_1-C_8 alkysulfonyl group which may be substituted,
C_3-C_8 cycloalkylsulfonyl group which may be substituted,
aralkysulfonyl group which may be substituted,
C_6-C_{10} arylsulfonyl group which may be substituted,
C_1-C_8 alkyloxycarbonyl group which may be substituted,
C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,
aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

aralkylaminocarbonyl group which may be substituted,

N,N'-diaralkylaminocarbonyl group which may be substituted,

N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_6-C_{10} arylaminocarbonyl group which may be substituted,

N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,

or an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total);

m represents an integer of 1 to 3;

each Y independently represents a halogen atom, a hydroxy group, a cyano group, Y^1-Y^3- wherein Y^1 represents a C_1-C_8 alkyl group which may be substituted; a C_3-C_8 cycloalkyl group which may be substituted or a C_6-C_{10} aryl ring which may be substituted; Y^3 represents a carbonyl group, a sulfinyl group, a sulfonyl group, an oxygen atom, a sulfur atom, a C_1-C_4 alkylene group which may be substituted or N-Re (Re represents a hydrogen atom, a C_1-C_4 alkyl group which may be substituted, an aralkyl group which may be substituted, C_3-C_8 cycloalkyl group which may be substituted or an aryl group which may be substituted,

C_1-C_8 alkylcarbonyl group which may be substituted,

C_3-C_8 cycloalkylcarbonyl group which may be substituted,

aralkycarbonyl group which may be substituted,

C_6-C_{10} arylcarbonyl group which may be substituted,

C_1-C_8 alkysulfonyl group which may be substituted,

C_3-C_8 cycloalkylsulfonyl group which may be substituted,

aralkysulfonyl group which may be substituted,

C_6-C_{10} arylsulfonyl group which may be substituted,

C_1-C_8 alkyloxycarbonyl group which may be substituted,

C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,

aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

aralkylaminocarbonyl group which may be substituted,

N,N'-diaralkylaminocarbonyl group which may be substituted,

N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_6-C_{10} arylaminocarbonyl group which may be substituted,

N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,

or an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected

from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total),

n represents an integer of 0 to 8;

when X and Y or two Y groups are attached on the same carbon atom, they may combine to each other to form a C_2-C_6 alkylene group;

and when m is 1, n is 0, and X is X^1-CO-,

(1) X does not bind to 3-position of unsubstituted 1-piperazinyl group or does not bind to 3-position of a 4-alkyl-1-piperazinyl group; or

(2) X does not bind to 3-position or 4-position of non-substituted 1-piperidinyl group.

According to another aspect of the present invention, there is provided a medicament comprising as an active ingredient a substance selected from the group consisting of the 3-substituted-4-pyrimidone derivatives represented by formula (I) and the physiologically acceptable salts thereof, and the solvates thereof and the hydrates thereof. As preferred embodiments of the medicament, there are provided the aforementioned medicament which is used for preventive and/or therapeutic treatment of diseases caused by tau protein kinase 1 hyperactivity, and the aforementioned medicament which is used for preventive and/or therapeutic treatment of neurodegenerative diseases.

As further preferred embodiments of the present invention, there are provided the aforementioned medicament wherein the diseases are selected from the group consisting of Alzheimer disease, ischemic cerebrovascular accidents, Down syndrome, cerebral bleeding due to cerebral amyloid angiopathy, progressive supranuclear palsy, subacute sclerosing panencephalitic parkinsonism, postencephalitic parkinsonism, pugilistic encephalitis, Guam parkinsonism-dementia complex, Lewy body disease, Pick's disease, corticobasal degeneration and frontotemporal dementia, vascular dementia, acute stroke and

traumatic injuries, brain and spinal cord trauma, peripheral neuropathies, retinopathies and glaucoma, non-insulin dependent diabetes (such as diabetes type II), and obesity, manic depressive illness, schizophrenia, alopecia, cancers such as breast cancer, non-small cell lung carcinoma, thyroid cancer, T or B-cell leukemia and several virus-induced tumors; and the aforementioned medicament in the form of pharmaceutical composition containing the above substance as an active ingredient together with one or more pharmaceutical additives.

The present invention further provides an inhibitor of tau protein kinase 1 comprising as an active ingredient a substance selected from the group consisting of the 3-substituted-4-pyrimidone derivatives of formula (I) and the salts thereof, and the solvates thereof and the hydrates thereof.

According to further aspects of the present invention, there are provided a method for preventive and/or therapeutic treatment of diseases caused by tau protein kinase 1 hyperactivity, which comprises the step of administering to a patient a preventively and/or therapeutically effective amount of a substance selected from the group consisting of the 3-substituted-4-pyrimidone derivatives of formula (I) and the physiologically acceptable salts thereof, and the solvates thereof and the hydrates thereof; and a use of a substance selected from the group consisting of the 3-substituted-4-pyrimidone derivatives of formula (I) and the physiologically acceptable salts thereof, and the solvates thereof and the hydrates thereof for the manufacture of the aforementioned medicament.

Best Mode for Carrying Out the Invention

In the present specification, each group has the following meanings.

The alkyl group used herein may be either linear or branched.

The C_1-C_{12} alkyl group represented by R may be, for example, methyl group, ethyl group, n-propyl group, isopropyl group, n-butyl group, isobutyl group, sec-butyl group, tert-butyl group, n-pentyl group, isopentyl group, neopentyl group,

1,1-dimethylpropyl group, n-hexyl group, isohexyl group, or a linear or branched heptyl group, octyl group, nonyl group, decyl group, undecyl group or dodecyl group. Particularly preferred R is methyl group.

In the specification, when a functional group is defined as "which may be substituted" or "optionally substituted", the number of substituents as well as their types and substituting positions are not particularly limited, and when two or more substituents are present, they may be the same or different.

When the C_1-C_{12} alkyl group represented by R has one or more substituents, the alkyl group may have one or more substituents selected from, for example, the groups consisting of a C_3-C_8 cycloalkyl group such as cyclopropyl group, cyclobutyl group, cyclopentyl group, cyclohexyl group, cycloheptyl group, cyclooctyl group; a C_1-C_5 alkoxy group such as methoxy group, ethoxy group, propoxy group, isopropoxy group, butoxy group, isobutoxy group, tert-butoxy group; C_1-C_3 alkylamino group or C_2-C_6 dialkylamino group; a C_6-C_{10} aryl group such as phenyl group, 1-naphthyl group, and 2-naphthyl group.

The C_1-C_8 alkyl group may be, for example, methyl group, ethyl group, n-propyl group, isopropyl group, n-butyl group, isobutyl group, sec-butyl group, tert-butyl group, n-pentyl group, isopentyl group, neopentyl group, 1,1-dimethylpropyl group, n-hexyl group, isohexyl group, or a linear or branched heptyl group or octyl group.

The C_1-C_4 alkyl group may be, for example, methyl group, ethyl group, n-propyl group, isopropyl group, n-butyl group, isobutyl group, sec-butyl group or tert-butyl group.

The C_3-C_8 cycloalkyl group may be, for example, cyclopropyl group, cyclobutyl group, cyclopentyl group, cyclohexyl group, cycloheptyl group or cyclooctyl group.

The optionally partially hydrogenated C_6-C_{10} aryl ring may be, for example a benzene ring, a naphthalene ring, an indan ring or a

1,2,3,4-tetrahydronaphthalene ring.

The heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total may be, for example, furan ring, dihydrofuran ring, tetrahydrofuran ring, pyran ring, dihydropyran ring, tetrahydropyran ring, benzofuran ring, dihydrobenzofuran, isobenzofuran ring, benzodioxol ring, chromene ring, chroman ring, isochroman ring, thiophene ring, benzothiophene ring, pyrrole ring, pyrroline ring, pyrrolidine ring, 2-oxopyrrolidine ring, imidazole ring, imidazoline ring, imidazolidine ring, pyrazole ring, pyrazoline ring, pyrazolidine ring, triazole ring, tetrazole ring, pyridine ring, pyridine oxide ring, piperidine ring, 4-oxopiperidine ring, pyrazine ring, piperazine ring, homopiperazine ring, pyrimidine ring, pyridazine ring, indole ring, indoline ring, isoindole ring, isoindoline ring, indazole ring, benzimidazole ring, benzotriazole ring, tetrahydroisoquinoline ring, benzothiazolinone ring, benzoxazolinone ring, purine ring, quinolizine ring, quinoline ring, phthalazine ring, naphthyridine ring, quinoxaline ring, quinazoline ring, cinnoline ring, pteridine ring, oxazole ring, oxazolidine ring, isoxazole ring, isoxazolidine ring, oxadiazole ring, thiazole ring, benzothiazole ring, thiazylidine ring, isothiazole ring, isothiazolidine ring, benzodioxole ring, dioxane ring, benzodioxane ring, dithian ring, morpholine ring, thiomorpholine ring, or phthalimide ring.

The aralkyl group may be, for example, benzyl group, 2-phenylethyl group, 3-phenylpropyl group or 4-phenylbutyl group.

The C_1-C_4 alkylene group may be, for example, methylene, ethylene, trimethylene or tetramethylene.

The 4 to 7 membered heterocyclic ring which may further contain 1 to 4 groups may be, for example, pyrrolidine, piperidine, morpholine, thiomorpholine, piperazine, homopiperazine, 2-oxopyrrolidine, pyrrole, imidazoline, imidazole, pyrazole, pyrroline, pyrrolidine, imidazolidine, imidazolone, succinimide or

glutarimide.

The C_6-C_{10} aryl ring may be, for example, a benzene ring or a naphthalene ring, and the aryl group or the C_6-C_{10} aryl group may be, for example, a phenyl group or naphthyl group.

When the ring represented by X or X^1 has one or more substituents, the ring may have one or more substituents selected from the group consisting of a C_1-C_5 alkyl group such as methyl group, ethyl group, propyl group, isopropyl group, butyl group, isobutyl group, sec-butyl group, tert-butyl group, pentyl group, isopentyl group, neopentyl group, 1,1-dimethylpropyl group; C_3-C_6 cycloalkyl group such as cyclopropyl group, cyclobutyl group, cyclopentyl group, cyclohexyl group; a C_3-C_6 cycloalkyl-C_1-C_4 alkyl group such as cyclopropylmethyl, cyclopentylmethyl, cyclohexylmethyl; a C_1-C_4 hydroxyalkyl group such as hydroxymethyl, hydroxyethyl, hydroxypropyl; a halogen atom such as fluorine atom, chlorine atom, bromine atom, and iodine atom; a C_1-C_5 halogenated alkyl group such as trifluoromethyl group; hydroxyl group; cyano group; nitro group; formyl group; a benzene ring which may be substituted; a naphthalene ring which may be substituted; an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom and nitrogen atom, and having 5 to 10 ring-constituting atoms in total (same as the above); an amino group; an N- C_3-C_6 cycloalkyl-N-C_1-C_4 alkylaminoalkyl group wherein said C_1-C_4 alkyl may be substituted by hydroxy group or C_1-C_4 alkoxy group such as N-cyclopropyl-N-methylaminomethyl group, N-cyclohexyl-N-methylaminomethyl group; a C_1-C_5 monoalkylaminomethyl group such as methylaminomethyl group, ethylaminomethyl group, propylaminomethyl group, isoproylaminomethyl group, butylaminomethyl group, isobutylaminomethyl group, tert-butylaminomethyl group, pentylaminomethyl group, isopentylaminomethyl group; a C_2-C_{10} dialkylaminomethyl group such as dimethylaminomethyl group, diethylaminomethyl group, ethylmethylaminomethyl group,

methylpropylaminomethyl group; pyrrolidinylmethyl group; piperidinylmethyl group; morpholinomethyl group; piperazinylmethyl group; pyrrolylmethyl group; imidazolylmethyl group; pyrazolylmethyl group; triazolylmethyl group; and a group of the formula -E-Rf wherein E represents O, S, SO, SO_2, CO or $N(R^4)$ and Rf represents a C_1-C_5 alkyl group (same as the above), a C_4-C_7 cycloalkyl group (same as the above), a C_4-C_7 cycloalkylalkl group (same as the above), a C_1-C_5 hydroxyalkyl group (same as the above), a benzene ring which may be substituted, a naphthalene ring which may be substituted, an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom and nitrogen atom, and having 5 to 10 ring-constituting atoms in total (same as the above), an N-C_3-C_6 cycloalkyl-N-C_1-C_4 alkylaminoalkyl group (same as the above), a C_1-C_5 monoalkylaminoalkyl group (same as the above), C_2-C_{10} dialkylaminoalkyl group (same as the above), pyrrolidinylmethyl group, piperidinylmethyl group, morpholinomethyl group, piperazinylmethyl group, pyrrolylmethyl group, imidazolylmethyl group, pyrazolylmethyl group or triazolylmethyl group,

C_1-C_8 alkylcarbonyl group which may be substituted,

C_3-C_8 cycloalkylcarbonyl group which may be substituted,

aralkycarbonyl group which may be substituted,

C_6-C_{10} arylcarbonyl group which may be substituted,

C_1-C_8 alkysulfonyl group which may be substituted,

C_3-C_8 cycloalkylsulfonyl group which may be substituted,

aralkysulfonyl group which may be substituted,

C_6-C_{10} arylsulfonyl group which may be substituted,

C_1-C_8 alkyloxycarbonyl group which may be substituted,

C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,

aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

aralkylaminocarbonyl group which may be substituted,

N,N'-diaralkylaminocarbonyl group which may be substituted,

N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_6-C_{10} arylaminocarbonyl group which may be substituted,

N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,

and R^4 represents a hydrogen atom, a C_1-C_4 alkyl group which may be substituted, an aralkyl group which may be substituted, C_3-C_8 cycloalkyl group which may be substituted or an aryl group which may be substituted,

C_1-C_8 alkylcarbonyl group which may be substituted,

C_3-C_8 cycloalkylcarbonyl group which may be substituted,

aralkycarbonyl group which may be substituted,

C_6-C_{10} arylcarbonyl group which may be substituted,

C_1-C_8 alkysulfonyl group which may be substituted,

C_3-C_8 cycloalkylsulfonyl group which may be substituted,

aralkysulfonyl group which may be substituted,

C_6-C_{10} arylsulfonyl group which may be substituted,

C_1-C_8 alkyloxycarbonyl group which may be substituted,

C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,

aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

aralkylaminocarbonyl group which may be substituted,

N,N'-diaralkylaminocarbonyl group which may be substituted,

N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_6-C_{10} arylaminocarbonyl group which may be substituted,

N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,

or an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total.

When the C_6-C_{10} aryl ring represented by Y^1 has one or more substituents, the ring may be substituted by one or more substituents selected from the groups consisting of halogen atoms, a C_1-C_5 alkyl group, a C_3-C_6 cycloalkyl group, a C_3-C_6 cycloalkyloxy group, a C_1-C_5 alkoxy group, a C_4-C_7 cycloalkylalkoxy, a C_1-C_5 alkylthio group, a C_1-C_5 alkylsulfonyl group, a C_1-C_5 halogenated alkyl, and a benzene ring.

When the ring represented by X, X^1 or Y^1 has one or more substituents, the substituent may further have one or more substituents selected from the group

consisting of a C_1-C_5 alkyl group such as methyl group, ethyl group, propyl group, isopropyl group, butyl group, isobutyl group, sec-butyl group, tert-butyl group, pentyl group, isopentyl group, neopentyl group, 1,1-dimethylpropyl group; C_3-C_6 cycloalkyl group such as cyclopropyl group, cyclobutyl group, cyclopentyl group, cyclohexyl group; a C_3-C_6 cycloalkyloxy group such as cyclopropyloxy group, cyclobutyloxy group, cyclopentyloxy group, cyclohexyloxy group; C_1-C_4 hydroxyalkyl group such as hydroxymethyl group, hydroxyethyl group, hydroxypropyl group, hydroxybutyl group; a C_1-C_5 alkoxy group such as methoxy group, ethoxy group, propoxy group, isopropoxy group, butoxy group, isobutoxy group, tert-butoxy group, pentyloxy group, and isopentyloxy group; a C_4-C_7 cycloalkylalkoxy group such as cyclopropylmethoxy group, cyclopentylmethoxy group; a C_1-C_5 alkylthio group such as methylthio group, ethylthio group, propylthio group, butylthio group, and pentylthio group; a C_1-C_5 alkylsulfonyl group such as methanesulfonyl group, ethanesulfonyl group, propanesulfonyl group, butanesulfonyl group, and pentanesulfonyl group; a halogen atom such as fluorine atom, chlorine atom, bromine atom, and iodine atom; a C_1-C_5 halogenated alkyl group such as trifluoromethyl group; a C_1-C_5 halogenated alkoxy group such as trifluoromethoxy group, 2,2,2-trifluoroethoxy group; hydroxyl group; cyano group; nitro group; formyl group; a C_2-C_6 alkylcarbonyl group such as acetyl group, propionyl group, butyryl group, and valeryl group; amino group; a C_1-C_5 monoalkylamino group such as methylamino group, ethylamino group, propylamino group, isopropylamino group, butylamino group, isobutylamino group, tert-butylamino group, pentylamino group, and isopentylamino group; a C_2-C_{10} dialkylamino group such as dimethylamino group, ethylmethylamino group, diethylamino group, methylpropylamino group, and diisopropylamino group; a cyclic amino group such as pyrrolidinyl group, piperidino group, morpholino group; a C_2-C_{10} monoalkylaminomethyl group such as methylaminomethyl group, ethylaminomethyl group, propylaminomethyl group, isoproylaminomethyl group, butylaminomethyl group, isobutylaminomethyl group,

tert-butylaminomethyl group, pentylaminomethyl group, isopentylaminomethyl; a C_3-C_{11} dialkylaminomethyl group such as dimethylaminomethyl group, diethylaminomethyl group, ethylmethylaminomethyl group, methylpropylaminomethyl group; a phenyl group; an aralkyloxy group such as benzyloxy, 2-phenylethyloxy, 3-phenylpropyloxy; an aralkyloxycarbonyl group such as benzyloxycarbonyl, 2-phenylehoxycarbonyl; an C_2-C_4 alkanoyloxy-C_1-C_4 alkyl group such as acetyloxymethyl, 2-acetyloxyethyl, 2-propionyloxyethyl; an alkanoylamino group such as acetylamino, propionylamino, butyrylamino; N-C_1-C_4 alkyl-N-alkanoylamino group such as N-methyl-N-acetylamino, N-ethyl-N-acetylamino, N-methyl-N-propionylamino, N-methyl-N-butyrylamino; a heterocyclic ring amino group such as pyridylamino, pyrimidinylamino, thienylamino, furylamino; N-C_1-C_4 alkyl-N-heterocyclic ring amino group such as N-methyl-N-pyridylamino, N-methyl-N-pyrimidinylamino, N-methyl-N-thienylamino, N-methyl-N-furylamino; a diheterocyclic ring amino group such as dipyridylamino, dipyrimidinylamino, dithienylamino, difurylamino, and the like.

R may preferably be a C_1-C_3 alkyl group, more preferably a methyl group or an ethyl group. The substituent of the alkyl group may preferably be a C_3-C_8 alkyl group.

X may preferably be a benzene ring which may be substituted, a benzyl group which may be substituted, a naphthyl group which may be substituted, a benzofuran ring which may be substituted, a dihydrobenzofuran ring which may be substituted, a benzoxazole ring which may be substituted, a benzisoxazole ring which may be substituted, a benzothiophene ring which may be substituted, a benzothiazole ring which may be substituted, a benzisothiazole ring which may be substituted, and a benzopyrazole ring which may be substituted; more preferably a benzene ring which may be substituted, a benzyl group which may be substituted. Substituent of X may preferably be selected from the group consisting of a halogen

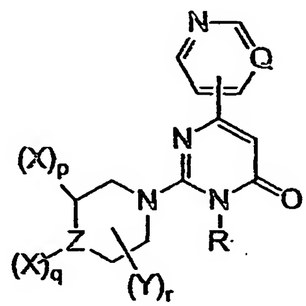
atom, a C_1-C_4 alkyl group, a C_1-C_4 alkoxy group, a hydroxy group, a nitro group, a cyano group, a perhalogenated C_1-C_4 alkyl group, a carboxyl group, a C_1-C_4 alkoxycarbonyl group, a C_1-C_4 alkylthio group, a C_1-C_4 alkoxysulfonyl group, amino group which may be substituted by a C_1-C_4 alkyl group, a benzene ring which may be substituted, and a cyclic amino group which may be substituted.

The compounds represented by the aforementioned formula (I) may form a salt. Examples of the salt include, when an acidic group exists, salts of alkali metals and alkaline earth metals such as lithium, sodium, potassium, magnesium, and calcium; salts of ammonia and amines such as methylamine, dimethylamine, trimethylamine, dicyclohexylamine, tris(hydroxymethyl)aminomethane, N,N-bis(hydroxyethyl)piperazine, 2-amino-2-methyl-1-propanol, ethanolamine, N-methylglucamine, and L-glucamine; or salts with basic amino acids such as lysine, δ-hydroxylysine, and arginine. When a basic group exists, examples include salts with mineral acids such as hydrochloric acid, hydrobromic acid, sulfuric acid, nitric acid, phosphoric acid; salts with organic acids such as methanesulfonic acid, benzenesulfonic acid, p-toluenesulfonic acid, acetic acid, propionic acid, tartaric acid, fumaric acid, maleic acid, malic acid, oxalic acid, succinic acid, citric acid, benzoic acid, mandelic acid, cinnamic acid, lactic acid, glycolic acid, glucuronic acid, ascorbic acid, nicotinic acid, and salicylic acid; or salts with acidic amino acids such as aspartic acid, and glutamic acid.

In addition to the 3-substituted-4-pyrimidone derivatives represented by the aforementioned formula (I) and salts thereof, their solvates and hydrates also fall within the scope of the present invention. The 3-substituted-4-pyrimidone derivatives represented by the aforementioned formula (I) may have one or more asymmetric carbon atoms. As for the stereochemistry of such asymmetric carbon atoms, they may independently be in either (R) and (S) configuration, and the pyrimidone derivative may exist as stereoisomers such as optical isomers, or diastereoisomers. Any stereoisomers in a pure form, any mixtures of stereoisomers,

racemates and the like fall within the scope of the present invention.

Preferred compounds of the present invention are represented by formula (II):



(II)

wherein Q, R, X, Y are the same as those defined above; p is 0 or 1; q is 0 or 1; r is an integer of 0 to 6; p+q is 1 or 2;

and Z represents N or CZ^1 wherein Z^1 represents hydrogen atom or Y.

Examples of more preferred classes of compounds represented by formula (II) include:

(1) those wherein R represents a C_1-C_3 alkyl group which may be substituted by a C_3-C_8 cycloalkyl group;

(2) the compounds of the above (1) wherein R is methyl group or ethyl group; Y is in 3-, 4- or 5-position of the piperazine ring or the piperidine ring; p+q is 1; and r is an integer of 0 to 3;

(3) the compounds of the above (2) wherein X is a C_1-C_8 alkyl group which may be substituted or a C_6-C_{10} aryl ring which may be substituted; Y is a C_1-C_6 alkyl group which may be substituted; p is 1; q is 0; r is an integer of 0 to 3; and Z is N or CH;

(4) the compounds of the above (3) wherein X is a benzene ring which may be substituted, a benzyl group which may be substituted; Y is a methyl group which may be substituted; Z is N and r is 0 or 1;

(5) the compounds of the above (2) wherein X is a benzene ring which may be substituted, a benzyl group which may be substituted, a benzoyl group which may be substituted, or a benzisothiazol ring which may be substituted; Y is a methyl

group which may be substituted; Z is N and p is 0;

(6) the compounds of the above (2) wherein X is a C_1-C_8 alkyl group substituted by a benzene ring which may be substituted or a benzene ring which may be substituted; Y is a hydroxy group, a cyano group, or Y^1-CO- wherein Y^1 is a C_1-C_8 alkyl group; Z is CH or C-Y and r is 0 or 1; and

(7) the compounds of the above (6) wherein X is a benzyl group which may be substituted or a benzene ring which may be substituted; Y is a hydroxy group, a cyano group, or an acetyl group; Z is CH or C-Y and r is 0 or 1.

Examples of particularly preferred classes of compounds represented by formula (II) include:

(1) those wherein R is methyl group, Y is CH_3O-CO- group or CH_3CH_2O-CO- group, Z is N, p is 0, q is 1, r is 0 or 1 and Y is in 3-position of the piperazine ring;

(2) those wherein R is methyl group, Y is methyl group, benzyl group or acetyl group, Z is N, p is 1, q is 0, r is 0 or 1 and Y is in 4-position of the piperazine ring;

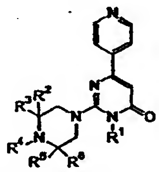
(3) those wherein R is methyl group, Y is methyl group, Z is N, p is 1, q is 0, r is 1 to 3 and Y is in 3-, 4-, or 5-position of the piperazine ring;

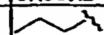
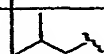
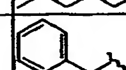
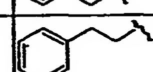
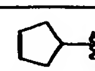
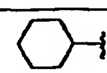
(4) those wherein R is methyl group, Y is hydroxyl group or cyano group, Z is CH, p is 1, q is 0, r is 0 or 1 and X and Y are attached on the same carbon atom;

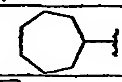
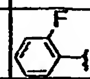
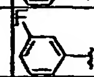
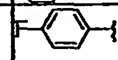
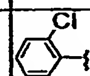
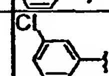
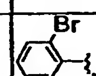
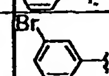
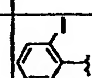
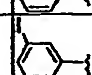
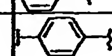
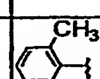
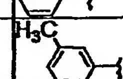
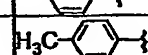
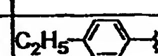
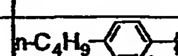
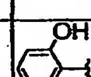
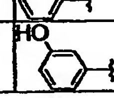
(5) those wherein R is methyl group, Y is hydroxyl group, cyano group or acetyl group, Z is C-Y, p is 0, q is 1 and r is 1.

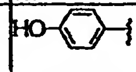
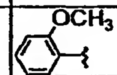
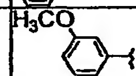
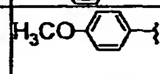
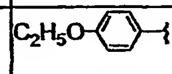
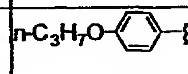
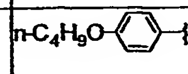
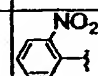
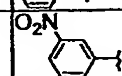
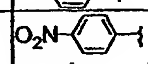
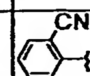
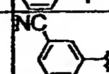
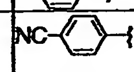
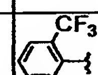
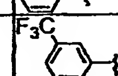
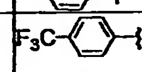
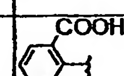
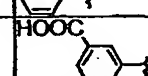
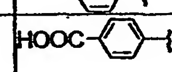
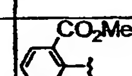
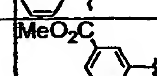
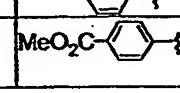
Examples of preferred compounds of the present invention are shown in the tables below. However, the scope of the present invention is not limited to the following compounds.

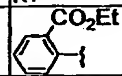
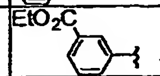
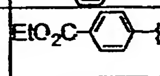
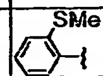
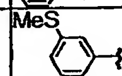
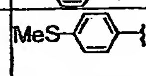
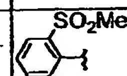
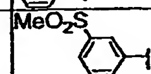
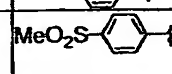
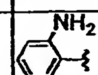
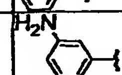
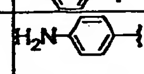
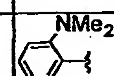
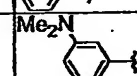
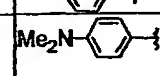
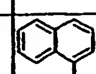
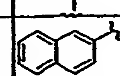
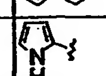
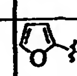
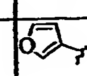
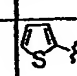
Table-1

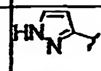
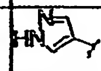
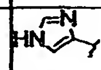
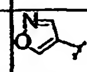
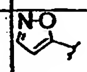
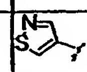
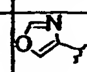
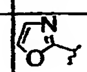
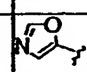
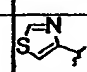
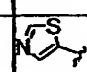
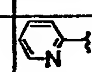
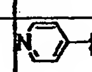
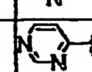


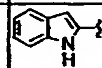
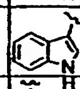
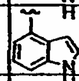
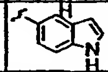
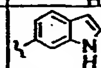
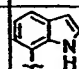
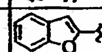
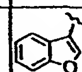
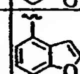
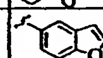
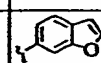
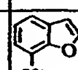
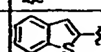
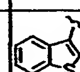
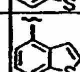
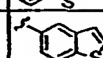
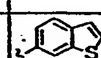
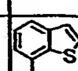
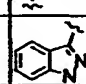
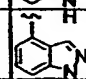
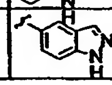
No.	R1	R2	R3	R4	R5	R6
XA1	CH3-	H	H	CH3-	H	H
XA2	CH3-	H	H	CH3CH2-	H	H
XA3	CH3-	H	H		H	H
XA4	CH3-	H	H		H	H
XA5	CH3-	H	H		H	H
XA6	CH3-	H	H		H	H
XA7	CH3-	H	H		H	H
XA8	CH3-	H	H		H	H
XA9	CH3-	H	H		H	H
XA10	CH3-	H	H		H	H
XA11	CH3-	H	H		H	H
XA12	CH3-	H	H		H	H
XA13	CH3-	H	H		H	H
XA14	CH3-	H	H		H	H
XA15	CH3-	H	H		H	H
XA16	CH3-	H	H		H	H
XA17	CH3-	H	H	n-C8H17-	H	H
XA18	CH3-	H	H		H	H
XA19	CH3-	H	H		H	H
XA20	CH3-	H	H		H	H
XA21	CH3-	H	H		H	H
XA22	CH3-	H	H		H	H
XA23	CH3-	H	H		H	H
XA24	CH3-	H	H		H	H
XA25	CH3-	H	H		H	H

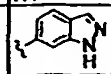
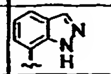
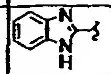
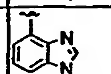
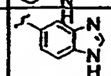
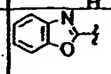
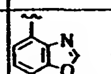
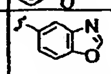
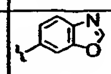
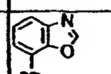
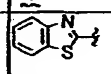
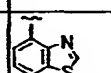
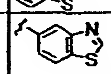
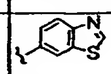
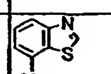
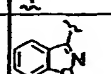
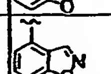
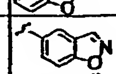
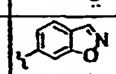
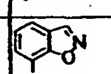
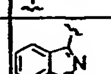
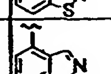
No.	R1	R2	R3	R4	R5	R6
XA26	CH3–	H	H		H	H
XA27	CH3–	H	H		H	H
XA28	CH3–	H	H		H	H
XA29	CH3–	H	H		H	H
XA30	CH3–	H	H		H	H
XA31	CH3–	H	H		H	H
XA32	CH3–	H	H		H	H
XA33	CH3–	H	H		H	H
XA34	CH3–	H	H		H	H
XA35	CH3–	H	H		H	H
XA36	CH3–	H	H		H	H
XA37	CH3–	H	H		H	H
XA38	CH3–	H	H		H	H
XA39	CH3–	H	H		H	H
XA40	CH3–	H	H		H	H
XA41	CH3–	H	H		H	H
XA42	CH3–	H	H		H	H
XA43	CH3–	H	H		H	H
XA44	CH3–	H	H		H	H
XA45	CH3–	H	H		H	H
XA46	CH3–	H	H		H	H
XA47	CH3–	H	H		H	H

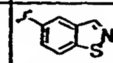
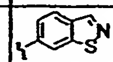
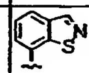
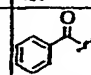
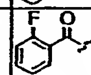
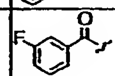
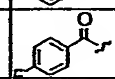
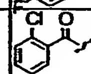
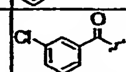
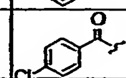
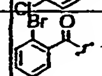
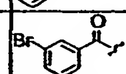
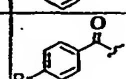
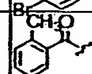
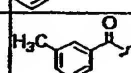
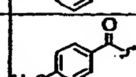
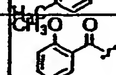
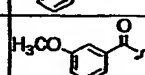
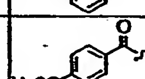
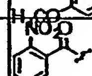
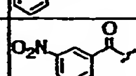
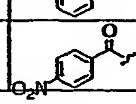
No.	R1	R2	R3	R4	R5	R6
XA48	CH3-	H	H		H	H
XA49	CH3-	H	H		H	H
XA50	CH3-	H	H		H	H
XA51	CH3-	H	H		H	H
XA52	CH3-	H	H		H	H
XA53	CH3-	H	H		H	H
XA54	CH3-	H	H		H	H
XA55	CH3-	H	H		H	H
XA56	CH3-	H	H		H	H
XA57	CH3-	H	H		H	H
XA58	CH3-	H	H		H	H
XA59	CH3-	H	H		H	H
XA60	CH3-	H	H		H	H
XA61	CH3-	H	H		H	H
XA62	CH3-	H	H		H	H
XA63	CH3-	H	H		H	H
XA64	CH3-	H	H		H	H
XA65	CH3-	H	H		H	H
XA66	CH3-	H	H		H	H
XA67	CH3-	H	H		H	H
XA68	CH3-	H	H		H	H
XA69	CH3-	H	H		H	H

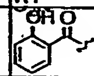
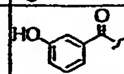
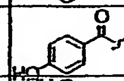
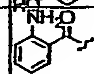
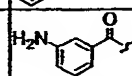
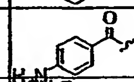
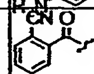
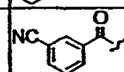
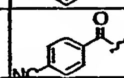
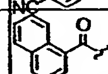
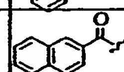
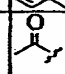
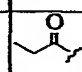
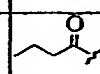
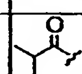
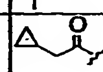
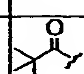
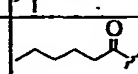
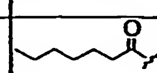
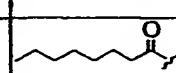
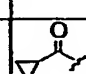
No.	R1	R2	R3	R4	R5	R6
XA70	CH3–	H	H		H	H
XA71	CH3–	H	H		H	H
XA72	CH3–	H	H		H	H
XA73	CH3–	H	H		H	H
XA74	CH3–	H	H		H	H
XA75	CH3–	H	H		H	H
XA76	CH3–	H	H		H	H
XA77	CH3–	H	H		H	H
XA78	CH3–	H	H		H	H
XA79	CH3–	H	H		H	H
XA80	CH3–	H	H		H	H
XA81	CH3–	H	H		H	H
XA82	CH3–	H	H		H	H
XA83	CH3–	H	H		H	H
XA84	CH3–	H	H		H	H
XA85	CH3–	H	H		H	H
XA86	CH3–	H	H		H	H
XA87	CH3–	H	H		H	H
XA88	CH3–	H	H		H	H
XA89	CH3–	H	H		H	H
XA90	CH3–	H	H		H	H
XA91	CH3–	H	H		H	H

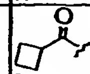
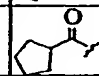
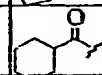
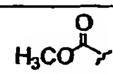
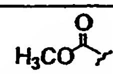
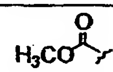
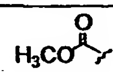
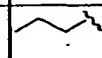
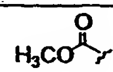
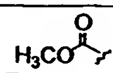
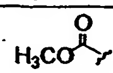
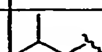
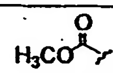
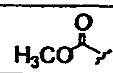
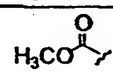
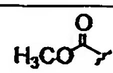
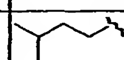
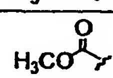
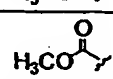
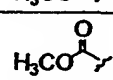
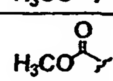
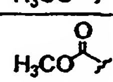
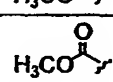
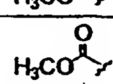
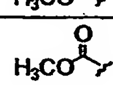
No.	R1	R2	R3	R4	R5	R6
XA92	CH3–	H	H		H	H
XA93	CH3–	H	H		H	H
XA94	CH3–	H	H		H	H
XA95	CH3–	H	H		H	H
XA96	CH3–	H	H		H	H
XA97	CH3–	H	H		H	H
XA98	CH3–	H	H		H	H
XA99	CH3–	H	H		H	H
XA100	CH3–	H	H		H	H
XA101	CH3–	H	H		H	H
XA102	CH3–	H	H		H	H
XA103	CH3–	H	H		H	H
XA104	CH3–	H	H		H	H
XA105	CH3–	H	H		H	H
XA106	CH3–	H	H		H	H
XA107	CH3–	H	H		H	H
XA108	CH3–	H	H		H	H
XA109	CH3–	H	H		H	H
XA110	CH3–	H	H		H	H
XA111	CH3–	H	H		H	H
XA112	CH3–	H	H		H	H
XA113	CH3–	H	H		H	H

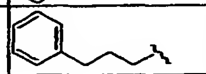
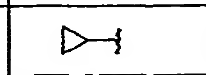
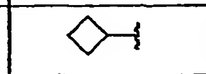
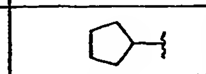
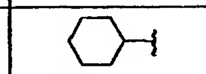
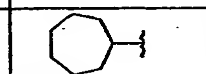
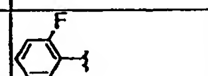
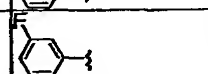
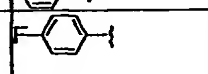
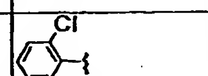
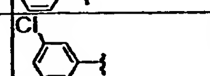
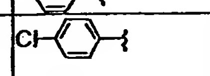
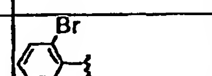
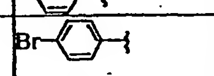
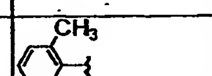
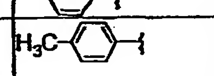
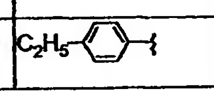
No.	R1	R2	R3	R4	R5	R6
XA114	CH3–	H	H		H	H
XA115	CH3–	H	H		H	H
XA116	CH3–	H	H		H	H
XA117	CH3–	H	H		H	H
XA118	CH3–	H	H		H	H
XA119	CH3–	H	H		H	H
XA120	CH3–	H	H		H	H
XA121	CH3–	H	H		H	H
XA122	CH3–	H	H		H	H
XA123	CH3–	H	H		H	H
XA124	CH3–	H	H		H	H
XA125	CH3–	H	H		H	H
XA126	CH3–	H	H		H	H
XA127	CH3–	H	H		H	H
XA128	CH3–	H	H		H	H
XA129	CH3–	H	H		H	H
XA130	CH3–	H	H		H	H
XA131	CH3–	H	H		H	H
XA132	CH3–	H	H		H	H
XA133	CH3–	H	H		H	H
XA134	CH3–	H	H		H	H
XA135	CH3–	H	H		H	H

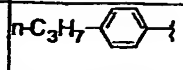
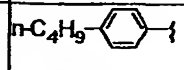
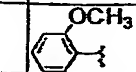
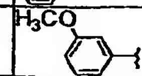
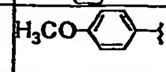
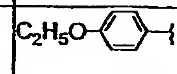
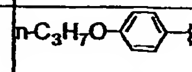
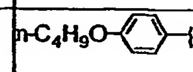
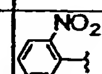
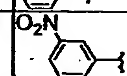
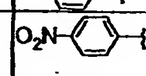
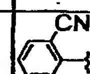
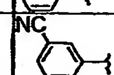
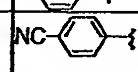
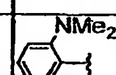
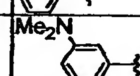
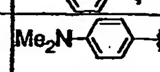
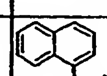
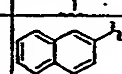
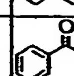
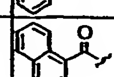
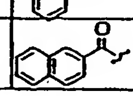
No.	R1	R2	R3	R4	R5	R6
XA136	CH3–	H	H		H	H
XA137	CH3–	H	H		H	H
XA138	CH3–	H	H		H	H
XA139	CH3–	H	H		H	H
XA140	CH3–	H	H		H	H
XA141	CH3–	H	H		H	H
XA142	CH3–	H	H		H	H
XA143	CH3–	H	H		H	H
XA144	CH3–	H	H		H	H
XA145	CH3–	H	H		H	H
XA146	CH3–	H	H		H	H
XA147	CH3–	H	H		H	H
XA148	CH3–	H	H		H	H
XA149	CH3–	H	H		H	H
XA150	CH3–	H	H		H	H
XA151	CH3–	H	H		H	H
XA152	CH3–	H	H		H	H
XA153	CH3–	H	H		H	H
XA154	CH3–	H	H		H	H
XA155	CH3–	H	H		H	H
XA156	CH3–	H	H		H	H
XA157	CH3–	H	H		H	H

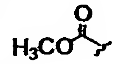
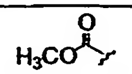
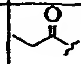
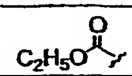
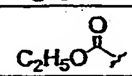
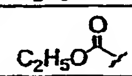
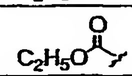
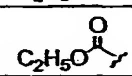
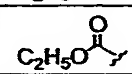
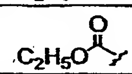
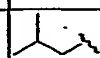
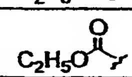
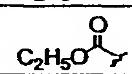
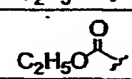
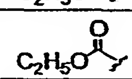
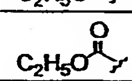
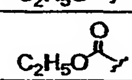
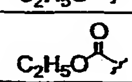
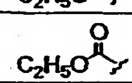
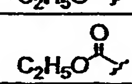
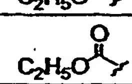
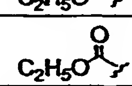
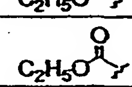
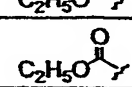
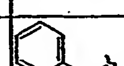
No.	R1	R2	R3	R4	R5	R6
XA158	CH3–	H	H		H	H
XA159	CH3–	H	H		H	H
XA160	CH3–	H	H		H	H
XA161	CH3–	H	H		H	H
XA162	CH3–	H	H		H	H
XA163	CH3–	H	H		H	H
XA164	CH3–	H	H		H	H
XA165	CH3–	H	H		H	H
XA166	CH3–	H	H		H	H
XA167	CH3–	H	H		H	H
XA168	CH3–	H	H		H	H
XA169	CH3–	H	H		H	H
XA170	CH3–	H	H		H	H
XA171	CH3–	H	H		H	H
XA172	CH3–	H	H		H	H
XA173	CH3–	H	H		H	H
XA174	CH3–	H	H		H	H
XA175	CH3–	H	H		H	H
XA176	CH3–	H	H		H	H
XA177	CH3–	H	H		H	H
XA178	CH3–	H	H		H	H
XA179	CH3–	H	H		H	H

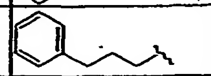
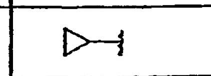
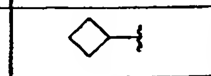
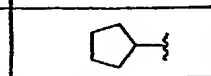
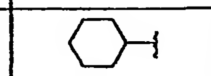
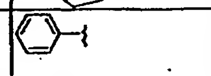
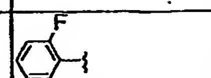
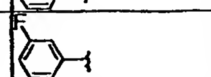
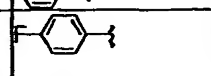
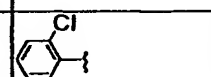
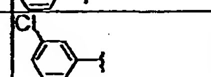
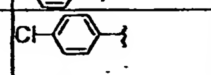
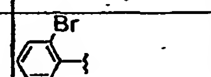
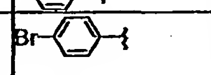
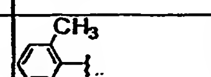
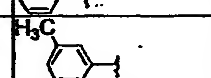
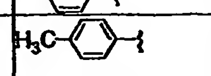
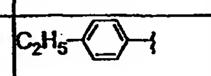
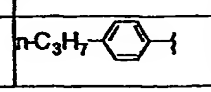
No.	R1	R2	R3	R4	R5	R6
XA180	CH3-	H	H		H	H
XA181	CH3-	H	H		H	H
XA182	CH3-	H	H		H	H
XA183	CH3-	H	H		H	H
XA184	CH3-	H	H		H	H
XA185	CH3-	H	H		H	H
XA186	CH3-	H	H		H	H
XA187	CH3-	H	H		H	H
XA188	CH3-	H	H		H	H
XA189	CH3-	H	H		H	H
XA190	CH3-	H	H		H	H
XA191	CH3-	H	H		H	H
XA192	CH3-	H	H		H	H
XA193	CH3-	H	H		H	H
XA194	CH3-	H	H		H	H
XA195	CH3-	H	H		H	H
XA196	CH3-	H	H		H	H
XA197	CH3-	H	H		H	H
XA198	CH3-	H	H		H	H
XA199	CH3-	H	H		H	H
XA200	CH3-	H	H		H	H
XA201	CH3-	H	H		H	H

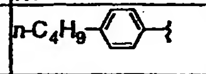
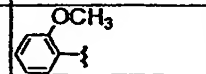
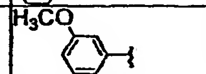
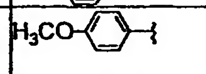
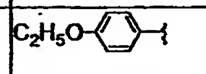
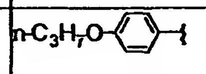
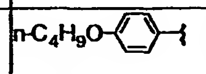
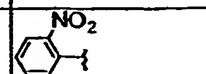
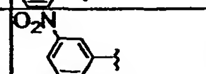
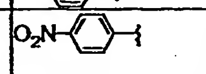
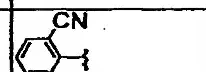
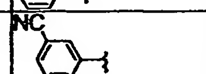
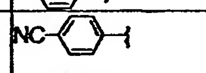
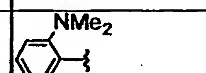
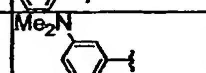
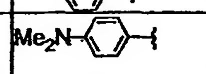
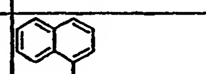
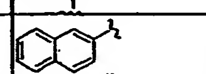
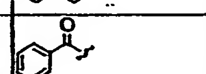
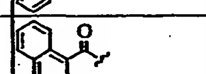
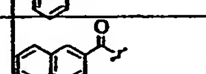
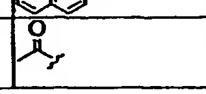
No.	R1	R2	R3	R4	R5	R6
XA202	CH3-	H	H		H	H
XA203	CH3-	H	H		H	H
XA204	CH3-	H	H		H	H
XA205	CH3-		H	H	H	H
XA206	CH3-		H	CH3-	H	H
XA207	CH3-		H	CH3CH2-	H	H
XA208	CH3-		H		H	H
XA209	CH3-		H		H	H
XA210	CH3-		H		H	H
XA211	CH3-		H		H	H
XA212	CH3-		H		H	H
XA213	CH3-		H		H	H
XA214	CH3-		H		H	H
XA215	CH3-		H		H	H
XA216	CH3-		H		H	H
XA217	CH3-		H		H	H
XA218	CH3-		H		H	H
XA219	CH3-		H		H	H
XA220	CH3-		H		H	H
XA221	CH3-		H		H	H
XA222	CH3-		H	n-C8H17-	H	H
XA223	CH3-		H		H	H

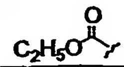
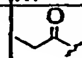
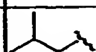
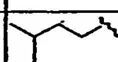
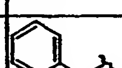
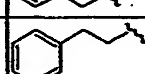
No.	R1	R2	R3	R4	R5	R6
XA224	CH3-	H_3CO-C(=O)-	H		H	H
XA225	CH3-	H_3CO-C(=O)-	H		H	H
XA226	CH3-	H_3CO-C(=O)-	H		H	H
XA227	CH3-	H_3CO-C(=O)-	H		H	H
XA228	CH3-	H_3CO-C(=O)-	H		H	H
XA229	CH3-	H_3CO-C(=O)-	H		H	H
XA230	CH3-	H_3CO-C(=O)-	H		H	H
XA231	CH3-	H_3CO-C(=O)-	H		H	H
XA232	CH3-	H_3CO-C(=O)-	H		H	H
XA233	CH3-	H_3CO-C(=O)-	H		H	H
XA234	CH3-	H_3CO-C(=O)-	H		H	H
XA235	CH3-	H_3CO-C(=O)-	H		H	H
XA236	CH3-	H_3CO-C(=O)-	H		H	H
XA237	CH3-	H_3CO-C(=O)-	H		H	H
XA238	CH3-	H_3CO-C(=O)-	H		H	H
XA239	CH3-	H_3CO-C(=O)-	H		H	H
XA240	CH3-	H_3CO-C(=O)-	H		H	H
XA241	CH3-	H_3CO-C(=O)-	H		H	H
XA242	CH3-	H_3CO-C(=O)-	H		H	H
XA243	CH3-	H_3CO-C(=O)-	H		H	H
XA244	CH3-	H_3CO-C(=O)-	H		H	H
XA245	CH3-	H_3CO-C(=O)-	H		H	H

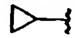
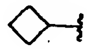
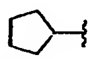
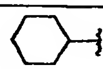
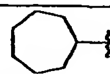
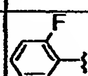
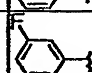
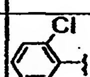
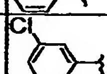
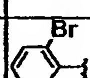
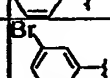
No.	R1	R2	R3	R4	R5	R6
XA246	CH3–	$H_3CO-C(=O)-$	H		H	H
XA247	CH3–	$H_3CO-C(=O)-$	H		H	H
XA248	CH3–	$H_3CO-C(=O)-$	H		H	H
XA249	CH3–	$H_3CO-C(=O)-$	H		H	H
XA250	CH3–	$H_3CO-C(=O)-$	H		H	H
XA251	CH3–	$H_3CO-C(=O)-$	H		H	H
XA252	CH3–	$H_3CO-C(=O)-$	H		H	H
XA253	CH3–	$H_3CO-C(=O)-$	H		H	H
XA254	CH3–	$H_3CO-C(=O)-$	H		H	H
XA255	CH3–	$H_3CO-C(=O)-$	H		H	H
XA256	CH3–	$H_3CO-C(=O)-$	H		H	H
XA257	CH3–	$H_3CO-C(=O)-$	H		H	H
XA258	CH3–	$H_3CO-C(=O)-$	H		H	H
XA259	CH3–	$H_3CO-C(=O)-$	H		H	H
XA260	CH3–	$H_3CO-C(=O)-$	H		H	H
XA261	CH3–	$H_3CO-C(=O)-$	H		H	H
XA262	CH3–	$H_3CO-C(=O)-$	H		H	H
XA263	CH3–	$H_3CO-C(=O)-$	H		H	H
XA264	CH3–	$H_3CO-C(=O)-$	H		H	H
XA265	CH3–	$H_3CO-C(=O)-$	H		H	H
XA266	CH3–	$H_3CO-C(=O)-$	H		H	H
XA267	CH3–	$H_3CO-C(=O)-$	H		H	H

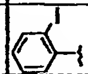
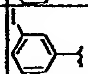
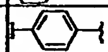
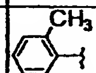
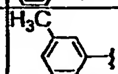
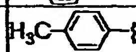
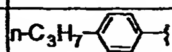
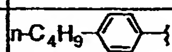
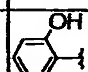
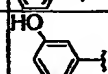
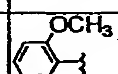
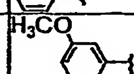
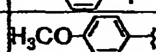
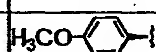
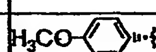
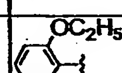
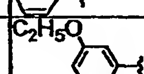
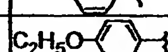
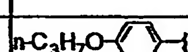
No.	R1	R2	R3	R4	R5	R6
XA268	CH3–		H		H	H
XA269	CH3–		H		H	H
XA270	CH3–		H	H	H	H
XA271	CH3–		H	CH3–	H	H
XA272	CH3–		H	CH3CH2–	H	H
XA273	CH3–		H		H	H
XA274	CH3–		H		H	H
XA275	CH3–		H		H	H
XA276	CH3–		H		H	H
XA277	CH3–		H		H	H
XA278	CH3–		H		H	H
XA279	CH3–		H		H	H
XA280	CH3–		H		H	H
XA281	CH3–		H		H	H
XA282	CH3–		H		H	H
XA283	CH3–		H		H	H
XA284	CH3–		H		H	H
XA285	CH3–		H		H	H
XA286	CH3–		H		H	H
XA287	CH3–		H	n–C8H17–	H	H
XA288	CH3–		H		H	H
XA289	CH3–		H		H	H

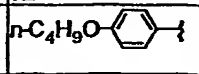
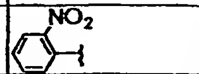
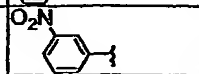
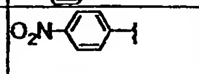
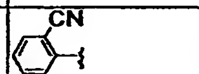
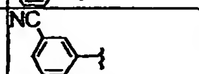
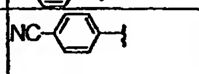
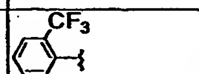
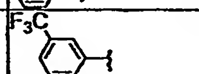
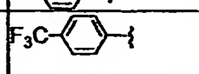
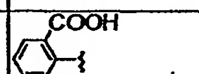
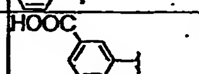
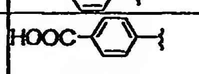
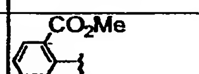
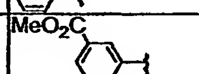
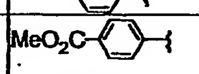
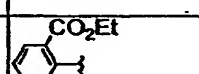
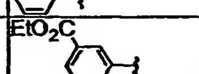
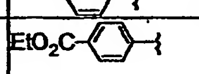
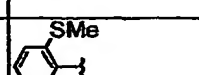
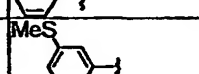
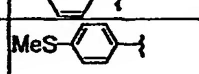
No.	R1	R2	R3	R4	R5	R6
XA290	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA291	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA292	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA293	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA294	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA295	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA296	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA297	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA298	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA299	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA300	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA301	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA302	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA303	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA304	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA305	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA306	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA307	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA308	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA309	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA310	CH3–	$C_2H_5OC(=O)-$	H		H	H
XA311	CH3–	$C_2H_5OC(=O)-$	H		H	H

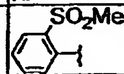
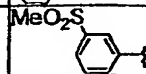
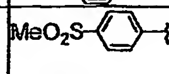
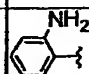
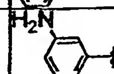
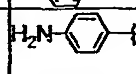
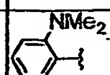
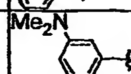
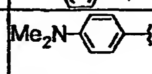
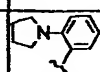
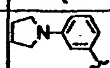
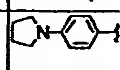
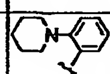
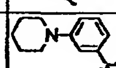
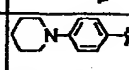
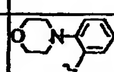
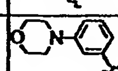
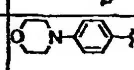
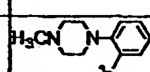
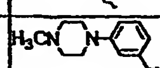
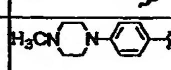
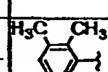
No.	R1	R2	R3	R4	R5	R6
XA312	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA313	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA314	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA315	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA316	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA317	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA318	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA319	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA320	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA321	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA322	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA323	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA324	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA325	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA326	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA327	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA328	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA329	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA330	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA331	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA332	CH3–	$C_2H_5OC(=O)$–	H		H	H
XA333	CH3–	$C_2H_5OC(=O)$–	H		H	H

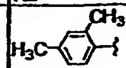
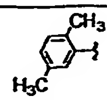
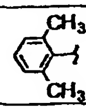
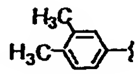
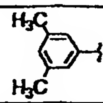
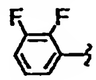
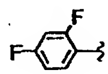
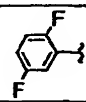
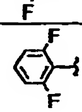
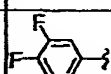
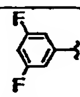
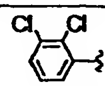
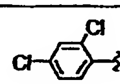
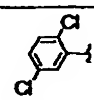
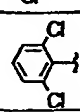
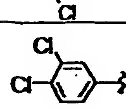
No.	R1	R2	R3	R4	R5	R6
XA334	CH3–		H		H	H
XA335	CH3–	CH3–	H	H	H	H
XA336	CH3–	CH3CH2–	H	H	H	H
XA337	CH3–		H	H	H	H
XA338	CH3–		H	H	H	H
XA339	CH3–		H	H	H	H
XA340	CH3–		H	H	H	H
XA341	CH3–		H	H	H	H
XA342	CH3–		H	H	H	H
XA343	CH3–		H	H	H	H
XA344	CH3–		H	H	H	H
XA345	CH3–		H	H	H	H
XA346	CH3–		H	H	H	H
XA347	CH3–		H	H	H	H
XA348	CH3–		H	H	H	H
XA349	CH3–		H	H	H	H
XA350	CH3–		H	H	H	H
XA351	CH3–	n-C8H17–	H	H	H	H
XA352	CH3–		H	H	H	H
XA353	CH3–		H	H	H	H
XA354	CH3–		H	H	H	H
XA355	CH3–		H	H	H	H

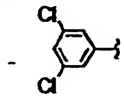
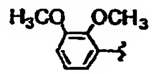
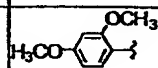
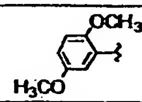
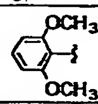
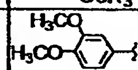
No.	R1	R2	R3	R4	R5	R6
XA356	CH3–		H	H	H	H
XA357	CH3–		H	H	H	H
XA358	CH3–		H	H	H	H
XA359	CH3–		H	H	H	H
XA360	CH3–		H	H	H	H
XA361	CH3–		H	H	H	H
XA362	CH3–		H	H	H	H
XA363	CH3–		H	H	H	H
XA364	CH3–		H	H	H	H
XA365	CH3–		H	H	H	H
XA366	CH3–		H	H	H	H
XA367	CH3–		H	H	H	H
XA368	CH3–		H	H	H	H
XA369	CH3–		H	H	H	H
XA370	CH3–		H	H	H	H
XA371	CH3–		H	H	H	H
XA372	CH3–		H	H	H	H
XA373	CH3–		H	H	H	H
XA374	CH3–		H	H	H	H
XA375	CH3–		H	H	H	H
XA376	CH3–		H	H	H	H
XA377	CH3–		H	H	H	H

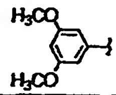
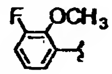
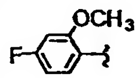
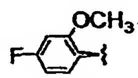
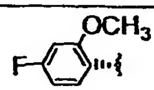
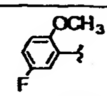
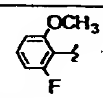
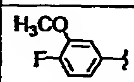
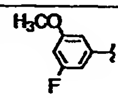
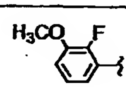
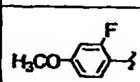
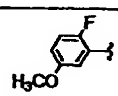
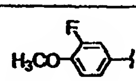
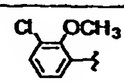
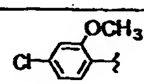
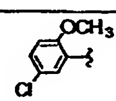
No.	R1	R2	R3	R4	R5	R6
XA378	CH3-		H	H	H	H
XA379	CH3-		H	H	H	H
XA380	CH3-		H	H	H	H
XA381	CH3-		H	H	H	H
XA382	CH3-		H	H	H	H
XA383	CH3-		H	H	H	H
XA384	CH3-		H	H	H	H
XA385	CH3-		H	H	H	H
XA386	CH3-		H	H	H	H
XA387	CH3-		H	H	H	H
XA388	CH3-		H	H	H	H
XA389	CH3-		H	H	H	H
XA390	CH3-		H	H	H	H
XA391	CH3-		H	H	H	H
XA392	CH3-		H	H	H	H
XA393	CH3-		H	H	H	H
XA394	CH3-		H	H	H	H
XA395	CH3-		H	H	H	H
XA396	CH3-		H	H	H	H
XA397	CH3-		H	H	H	H
XA398	CH3-		H	H	H	H
XA399	CH3-		H	H	H	H

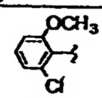
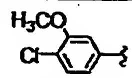
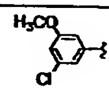
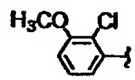
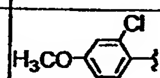
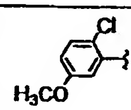
No.	R1	R2	R3	R4	R5	R6
XA400	CH3–		H	H	H	H
XA401	CH3–		H	H	H	H
XA402	CH3–		H	H	H	H
XA403	CH3–		H	H	H	H
XA404	CH3–		H	H	H	H
XA405	CH3–		H	H	H	H
XA406	CH3–		H	H	H	H
XA407	CH3–		H	H	H	H
XA408	CH3–		H	H	H	H
XA409	CH3–		H	H	H	H
XA410	CH3–		H	H	H	H
XA411	CH3–		H	H	H	H
XA412	CH3–		H	H	H	H
XA413	CH3–		H	H	H	H
XA414	CH3–		H	H	H	H
XA415	CH3–		H	H	H	H
XA416	CH3–		H	H	H	H
XA417	CH3–		H	H	H	H
XA418	CH3–		H	H	H	H
XA419	CH3–		H	H	H	H
XA420	CH3–		H	H	H	H
XA421	CH3–		H	H	H	H

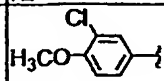
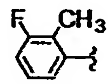
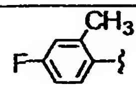
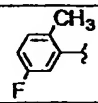
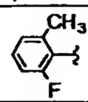
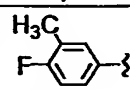
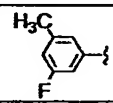
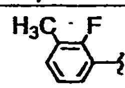
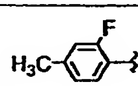
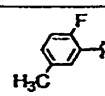
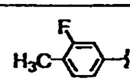
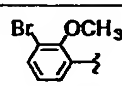
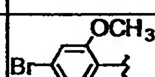
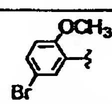
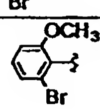
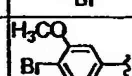
No.	R1	R2	R3	R4	R5	R6
XA422	CH3-		H	H	H	H
XA423	CH3-		H	H	H	H
XA424	CH3-		H	H	H	H
XA425	CH3-		H	H	H	H
XA426	CH3-		H	H	H	H
XA427	CH3-		H	H	H	H
XA428	CH3-		H	H	H	H
XA429	CH3-		H	H	H	H
XA430	CH3-		H	H	H	H
XA431	CH3-		H	H	H	H
XA432	CH3-		H	H	H	H
XA433	CH3-		H	H	H	H
XA434	CH3-		H	H	H	H
XA435	CH3-		H	H	H	H
XA436	CH3-		H	H	H	H
XA437	CH3-		H	H	H	H
XA438	CH3-		H	H	H	H
XA439	CH3-		H	H	H	H
XA440	CH3-		H	H	H	H
XA441	CH3-		H	H	H	H
XA442	CH3-		H	H	H	H
XA443	CH3-		H	H	H	H

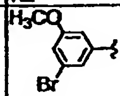
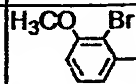
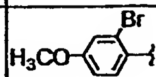
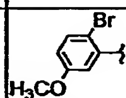
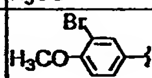
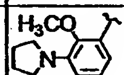
No.	R1	R2	R3	R4	R5	R6
XA444	CH3–		H	H	H	H
XA445	CH3–		H	H	H	H
XA446	CH3–		H	H	H	H
XA447	CH3–		H	H	H	H
XA448	CH3–		H	H	H	H
XA449	CH3–		H	H	H	H
XA450	CH3–		H	H	H	H
XA451	CH3–		H	H	H	H
XA452	CH3–		H	H	H	H
XA453	CH3–		H	H	H	H
XA454	CH3–		H	H	H	H
XA455	CH3–		H	H	H	H
XA456	CH3–		H	H	H	H
XA457	CH3–		H	H	H	H
XA458	CH3–		H	H	H	H
XA459	CH3–		H	H	H	H

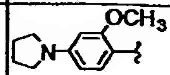
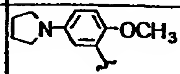
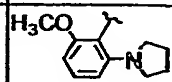
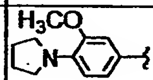
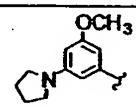
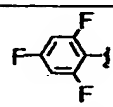
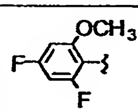
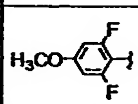
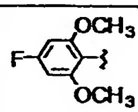
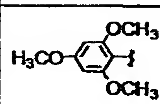
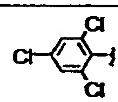
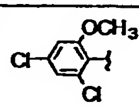
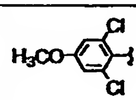
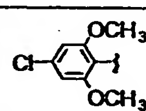
No.	R1	R2	R3	R4	R5	R6
XA460	CH3-		H	H	H	H
XA461	CH3-		H	H	H	H
XA462	CH3-		H	H	H	H
XA463	CH3-		H	H	H	H
XA464	CH3-		H	H	H	H
XA465	CH3-		H	H	H	H

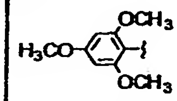
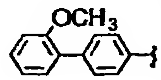
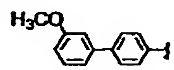
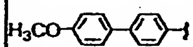
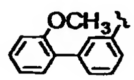
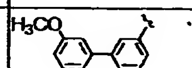
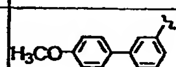
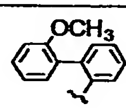
No.	R1	R2	R3	R4	R5	R6
XA466	CH3–		H	H	H	H
XA467	CH3–		H	H	H	H
XA468	CH3–		H	H	H	H
XA469	CH3–		H	H	H	H
XA470	CH3–		H	H	H	H
XA471	CH3–		H	H	H	H
XA472	CH3–		H	H	H	H
XA473	CH3–		H	H	H	H
XA474	CH3–		H	H	H	H
XA475	CH3–		H	H	H	H
XA476	CH3–		H	H	H	H
XA477	CH3–		H	H	H	H
XA478	CH3–		H	H	H	H
XA479	CH3–		H	H	H	H
XA480	CH3–		H	H	H	H
XA481	CH3–		H	H	H	H

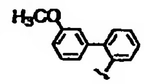
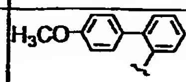
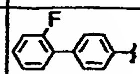
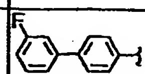
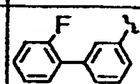
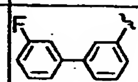
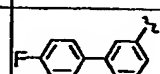
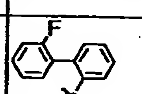
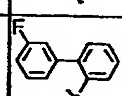
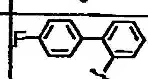
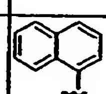
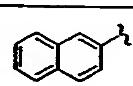
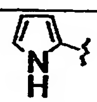
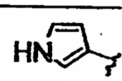
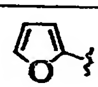
No.	R1	R2	R3	R4	R5	R6
XA482	CH3-		H	H	H	H
XA483	CH3-		H	H	H	H
XA484	CH3-		H	H	H	H
XA485	CH3-		H	H	H	H
XA486	CH3-		H	H	H	H
XA487	CH3-		H	H	H	H

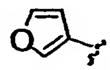
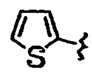
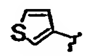
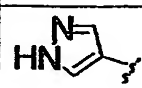
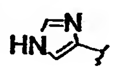
No.	R1	R2	R3	R4	R5	R6
XA488	CH3-		H	H	H	H
XA489	CH3-		H	H	H	H
XA490	CH3-		H	H	H	H
XA491	CH3-		H	H	H	H
XA492	CH3-		H	H	H	H
XA493	CH3-		H	H	H	H
XA494	CH3-		H	H	H	H
XA495	CH3-		H	H	H	H
XA496	CH3-		H	H	H	H
XA497	CH3-		H	H	H	H
XA498	CH3-		H	H	H	H
XA499	CH3-		H	H	H	H
XA500	CH3-		H	H	H	H
XA501	CH3-		H	H	H	H
XA502	CH3-		H	H	H	H
XA503	CH3-		H	H	H	H

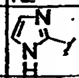
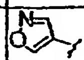
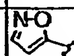
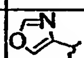
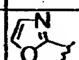
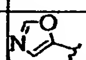
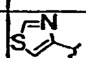
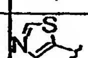
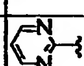
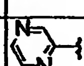
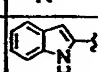
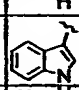
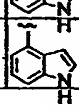
No.	R1	R2	R3	R4	R5	R6
XA504	CH3–		H	H	H	H
XA505	CH3–		H	H	H	H
XA506	CH3–		H	H	H	H
XA507	CH3–		H	H	H	H
XA508	CH3–		H	H	H	H
XA509	CH3–		H	H	H	H

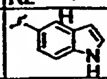
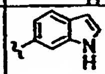
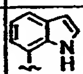
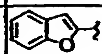
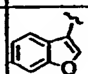
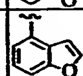
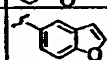
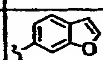
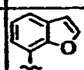
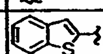
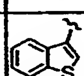
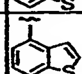
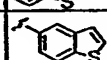
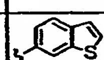
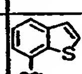
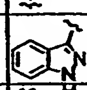
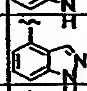
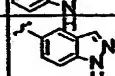
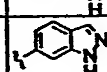
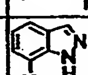
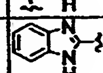
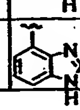
No.	R1	R2	R3	R4	R5	R6
XA510	CH3–		H	H	H	H
XA511	CH3–		H	H	H	H
XA512	CH3–		H	H	H	H
XA513	CH3–		H	H	H	H
XA514	CH3–		H	H	H	H
XA515	CH3–		H	H	H	H
XA516	CH3–		H	H	H	H
XA517	CH3–		H	H	H	H
XA518	CH3–		H	H	H	H
XA519	CH3–		H	H	H	H
XA520	CH3–		H	H	H	H
XA521	CH3–		H	H	H	H
XA522	CH3–		H	H	H	H
XA523	CH3–		H	H	H	H

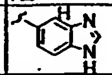
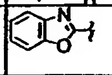
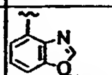
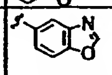
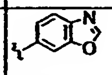
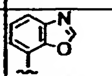
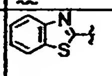
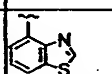
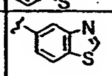
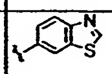
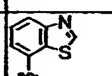
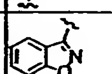
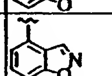
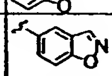
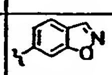
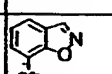
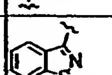
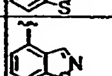
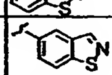
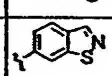
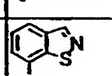
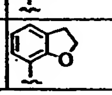
No.	R1	R2	R3	R4	R5	R6
XA524	CH3–		H	H	H	H
XA525	CH3–		H	H	H	H
XA526	CH3–		H	H	H	H
XA527	CH3–		H	H	H	H
XA528	CH3–		H	H	H	H
XA529	CH3–		H	H	H	H
XA530	CH3–		H	H	H	H
XA531	CH3–		H	H	H	H

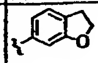
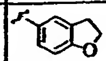
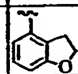
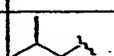
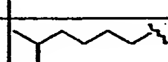
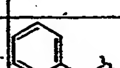
No.	R1	R2	R3	R4	R5	R6
XA532	CH3–		H	H	H	H
XA533	CH3–		H	H	H	H
XA534	CH3–		H	H	H	H
XA535	CH3–		H	H	H	H
XA536	CH3–		H	H	H	H
XA537	CH3–		H	H	H	H
XA538	CH3–		H	H	H	H
XA539	CH3–		H	H	H	H
XA540	CH3–		H	H	H	H
XA541	CH3–		H	H	H	H
XA542	CH3–		H	H	H	H
XA543	CH3–		H	H	H	H
XA544	CH3–		H	H	H	H
XA545	CH3–		H	H	H	H
XA546	CH3–		H	H	H	H
XA547	CH3–		H	H	H	H

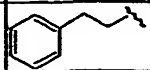
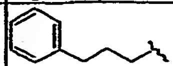
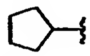
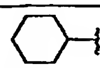
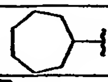
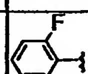
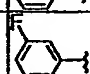
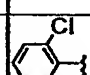
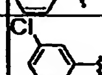
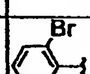
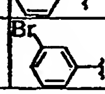
No.	R1	R2	R3	R4	R5	R6
XA548	CH3-		H	H	H	H
XA549	CH3-		H	H	H	H
XA550	CH3-		H	H	H	H
XA551	CH3-		H	H	H	H
XA552	CH3-		H	H	H	H
XA553	CH3-		H	H	H	H

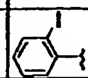
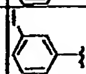
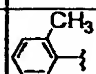
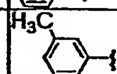
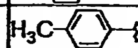
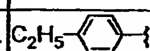
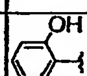
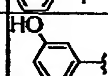
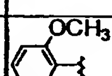
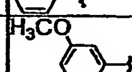
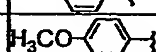
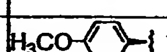
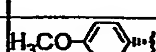
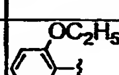
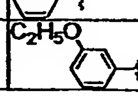
No.	R1	R2	R3	R4	R5	R6
XA554	CH3–		H	H	H	H
XA555	CH3–		H	H	H	H
XA556	CH3–		H	H	H	H
XA557	CH3–		H	H	H	H
XA558	CH3–		H	H	H	H
XA559	CH3–		H	H	H	H
XA560	CH3–		H	H	H	H
XA561	CH3–		H	H	H	H
XA562	CH3–		H	H	H	H
XA563	CH3–		H	H	H	H
XA564	CH3–		H	H	H	H
XA565	CH3–		H	H	H	H
XA566	CH3–		H	H	H	H
XA567	CH3–		H	H	H	H
XA568	CH3–		H	H	H	H
XA569	CH3–		H	H	H	H
XA570	CH3–		H	H	H	H
XA571	CH3–		H	H	H	H
XA572	CH3–		H	H	H	H
XA573	CH3–		H	H	H	H
XA574	CH3–		H	H	H	H
XA575	CH3–		H	H	H	H

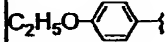
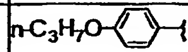
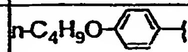
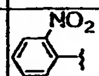
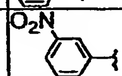
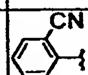
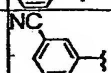
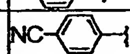
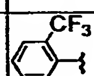
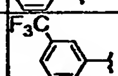
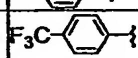
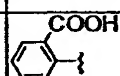
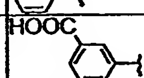
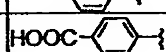
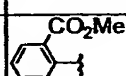
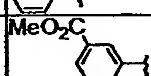
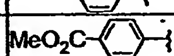
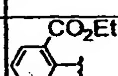
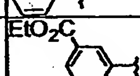
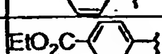
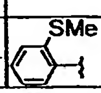
No.	R1	R2	R3	R4	R5	R6
XA576	CH3-		H	H	H	H
XA577	CH3-		H	H	H	H
XA578	CH3-		H	H	H	H
XA579	CH3-		H	H	H	H
XA580	CH3-		H	H	H	H
XA581	CH3-		H	H	H	H
XA582	CH3-		H	H	H	H
XA583	CH3-		H	H	H	H
XA584	CH3-		H	H	H	H
XA585	CH3-		H	H	H	H
XA586	CH3-		H	H	H	H
XA587	CH3-		H	H	H	H
XA588	CH3-		H	H	H	H
XA589	CH3-		H	H	H	H
XA590	CH3-		H	H	H	H
XA591	CH3-		H	H	H	H
XA592	CH3-		H	H	H	H
XA593	CH3-		H	H	H	H
XA594	CH3-		H	H	H	H
XA595	CH3-		H	H	H	H
XA596	CH3-		H	H	H	H
XA597	CH3-		H	H	H	H

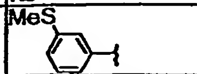
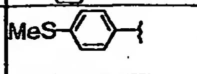
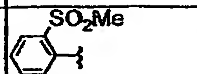
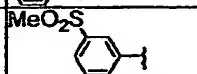
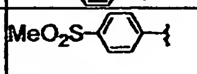
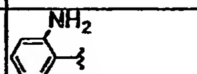
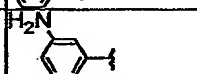
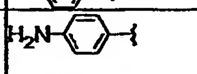
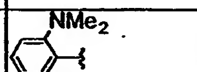
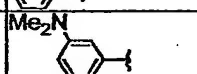
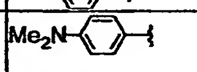
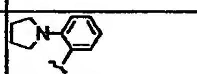
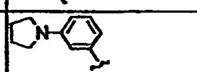
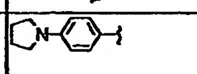
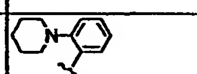
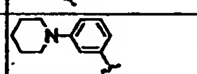
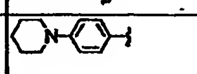
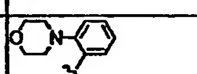
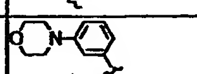
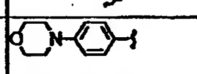
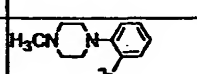
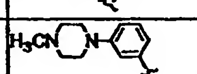
No.	R1	R2	R3	R4	R5	R6
XA598	CH3–		H	H	H	H
XA599	CH3–		H	H	H	H
XA600	CH3–		H	H	H	H
XA601	CH3–		H	H	H	H
XA602	CH3–		H	H	H	H
XA603	CH3–		H	H	H	H
XA604	CH3–		H	H	H	H
XA605	CH3–		H	H	H	H
XA606	CH3–		H	H	H	H
XA607	CH3–		H	H	H	H
XA608	CH3–		H	H	H	H
XA609	CH3–		H	H	H	H
XA610	CH3–		H	H	H	H
XA611	CH3–		H	H	H	H
XA612	CH3–		H	H	H	H
XA613	CH3–		H	H	H	H
XA614	CH3–		H	H	H	H
XA615	CH3–		H	H	H	H
XA616	CH3–		H	H	H	H
XA617	CH3–		H	H	H	H
XA618	CH3–		H	H	H	H
XA619	CH3–		H	H	H	H

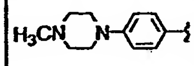
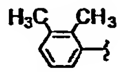
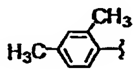
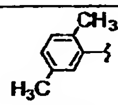
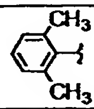
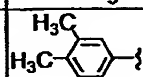
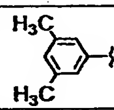
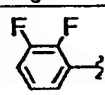
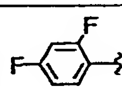
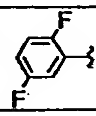
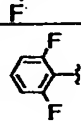
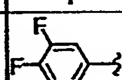
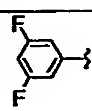
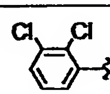
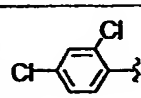
No.	R1	R2	R3	R4	R5	R6
XA620	CH3−		H	H	H	H
XA621	CH3−		H	H	H	H
XA622	CH3−		H	H	H	H
XA623	CH3−	CH3−	H	CH3	H	H
XA624	CH3−	CH3CH2−	H	CH3	H	H
XA625	CH3−		H	CH3	H	H
XA626	CH3−		H	CH3	H	H
XA627	CH3−		H	CH3	H	H
XA628	CH3−		H	CH3	H	H
XA629	CH3−		H	CH3	H	H
XA630	CH3−		H	CH3	H	H
XA631	CH3−		H	CH3	H	H
XA632	CH3−		H	CH3	H	H
XA633	CH3−		H	CH3	H	H
XA634	CH3−		H	CH3	H	H
XA635	CH3−		H	CH3	H	H
XA636	CH3−		H	CH3	H	H
XA637	CH3−		H	CH3	H	H
XA638	CH3−		H	CH3	H	H
XA639	CH3−	n−C8H17−	H	CH3	H	H
XA640	CH3−		H	CH3	H	H
XA641	CH3−		H	CH3	H	H

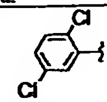
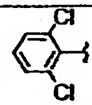
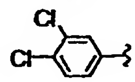
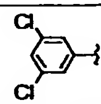
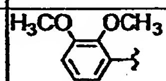
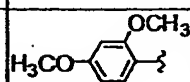
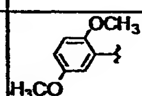
No.	R1	R2	R3	R4	R5	R6
XA642	CH3–		H	CH3	H	H
XA643	CH3–		H	CH3	H	H
XA644	CH3–		H	CH3	H	H
XA645	CH3–		H	CH3	H	H
XA646	CH3–		H	CH3	H	H
XA647	CH3–		H	CH3	H	H
XA648	CH3–		H	CH3	H	H
XA649	CH3–		H	CH3	H	H
XA650	CH3–		H	CH3	H	H
XA651	CH3–		H	CH3	H	H
XA652	CH3–		H	CH3	H	H
XA653	CH3–		H	CH3	H	H
XA654	CH3–		H	CH3	H	H
XA655	CH3–		H	CH3	H	H
XA656	CH3–		H	CH3	H	H
XA657	CH3–		H	CH3	H	H
XA658	CH3–		H	CH3	H	H
XA659	CH3–		H	CH3	H	H
XA660	CH3–		H	CH3	H	H
XA661	CH3–		H	CH3	H	H
XA662	CH3–		H	CH3	H	H
XA663	CH3–		H	CH3	H	H

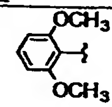
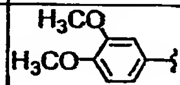
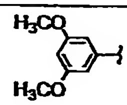
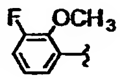
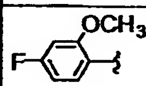
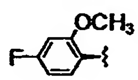
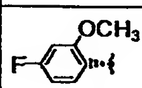
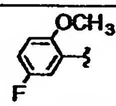
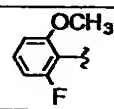
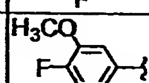
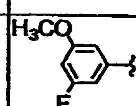
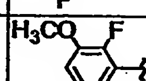
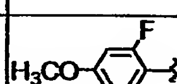
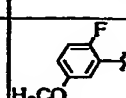
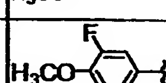
No.	R1	R2	R3	R4	R5	R6
XA664	CH3-		H	CH3	H	H
XA665	CH3-		H	CH3	H	H
XA666	CH3-		H	CH3	H	H
XA667	CH3-		H	CH3	H	H
XA668	CH3-		H	CH3	H	H
XA669	CH3-		H	CH3	H	H
XA670	CH3-		H	CH3	H	H
XA671	CH3-		H	CH3	H	H
XA672	CH3-		H	CH3	H	H
XA673	CH3-		H	CH3	H	H
XA674	CH3-		H	CH3	H	H
XA675	CH3-		H	CH3	H	H
XA676	CH3-		H	CH3	H	H
XA677	CH3-		H	CH3	H	H
XA678	CH3-		H	CH3	H	H
XA679	CH3-		H	CH3	H	H
XA680	CH3-		H	CH3	H	H
XA681	CH3-		H	CH3	H	H
XA682	CH3-		H	CH3	H	H
XA683	CH3-		H	CH3	H	H
XA684	CH3-		H	CH3	H	H
XA685	CH3-		H	CH3	H	H

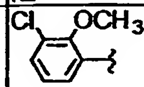
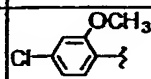
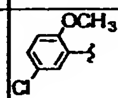
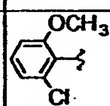
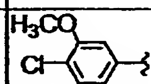
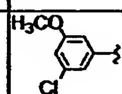
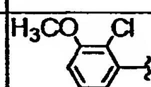
No.	R1	R2	R3	R4	R5	R6
XA686	CH3-		H	CH3	H	H
XA687	CH3-		H	CH3	H	H
XA688	CH3-		H	CH3	H	H
XA689	CH3-		H	CH3	H	H
XA690	CH3-		H	CH3	H	H
XA691	CH3-		H	CH3	H	H
XA692	CH3-		H	CH3	H	H
XA693	CH3-		H	CH3	H	H
XA694	CH3-		H	CH3	H	H
XA695	CH3-		H	CH3	H	H
XA696	CH3-		H	CH3	H	H
XA697	CH3-		H	CH3	H	H
XA698	CH3-		H	CH3	H	H
XA699	CH3-		H	CH3	H	H
XA700	CH3-		H	CH3	H	H
XA701	CH3-		H	CH3	H	H
XA702	CH3-		H	CH3	H	H
XA703	CH3-		H	CH3	H	H
XA704	CH3-		H	CH3	H	H
XA705	CH3-		H	CH3	H	H
XA706	CH3-		H	CH3	H	H
XA707	CH3-		H	CH3	H	H

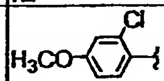
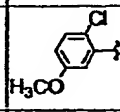
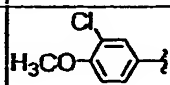
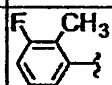
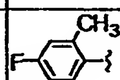
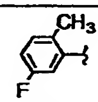
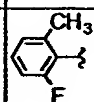
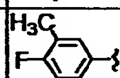
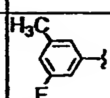
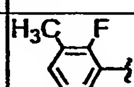
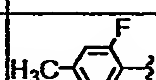
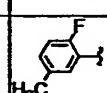
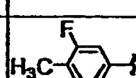
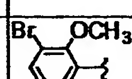
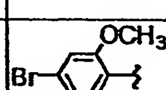
No.	R1	R2	R3	R4	R5	R6
XA708	CH3-		H	CH3	H	H
XA709	CH3-		H	CH3	H	H
XA710	CH3-		H	CH3	H	H
XA711	CH3-		H	CH3	H	H
XA712	CH3-		H	CH3	H	H
XA713	CH3-		H	CH3	H	H
XA714	CH3-		H	CH3	H	H
XA715	CH3-		H	CH3	H	H
XA716	CH3-		H	CH3	H	H
XA717	CH3-		H	CH3	H	H
XA718	CH3-		H	CH3	H	H
XA719	CH3-		H	CH3	H	H
XA720	CH3-		H	CH3	H	H
XA721	CH3-		H	CH3	H	H
XA722	CH3-		H	CH3	H	H
XA723	CH3-		H	CH3	H	H
XA724	CH3-		H	CH3	H	H
XA725	CH3-		H	CH3	H	H
XA726	CH3-		H	CH3	H	H
XA727	CH3-		H	CH3	H	H
XA728	CH3-		H	CH3	H	H
XA729	CH3-		H	CH3	H	H

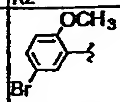
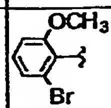
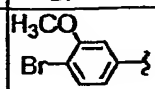
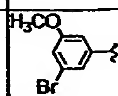
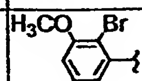
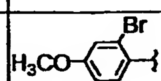
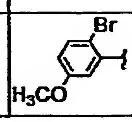
No.	R1	R2	R3	R4	R5	R6
XA730	CH3-		H	CH3	H	H
XA731	CH3-		H	CH3	H	H
XA732	CH3-		H	CH3	H	H
XA733	CH3-		H	CH3	H	H
XA734	CH3-		H	CH3	H	H
XA735	CH3-		H	CH3	H	H
XA736	CH3-		H	CH3	H	H
XA737	CH3-		H	CH3	H	H
XA738	CH3-		H	CH3	H	H
XA739	CH3-		H	CH3	H	H
XA740	CH3-		H	CH3	H	H
XA741	CH3-		H	CH3	H	H
XA742	CH3-		H	CH3	H	H
XA743	CH3-		H	CH3	H	H
XA744	CH3-		H	CH3	H	H

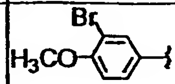
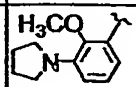
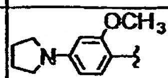
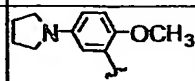
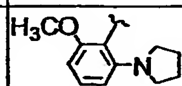
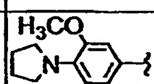
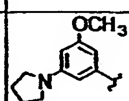
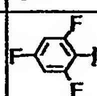
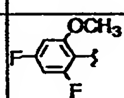
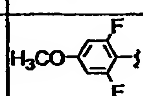
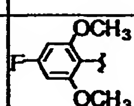
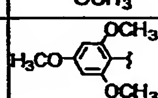
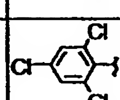
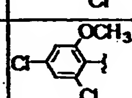
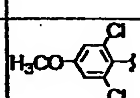
No.	R1	R2	R3	R4	R5	R6
XA745	CH3–		H	CH3	H	H
XA746	CH3–		H	CH3	H	H
XA747	CH3–		H	CH3	H	H
XA748	CH3–		H	CH3	H	H
XA749	CH3–		H	CH3	H	H
XA750	CH3–		H	CH3	H	H
XA751	CH3–		H	CH3	H	H

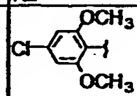
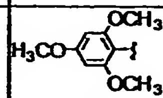
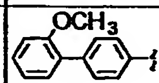
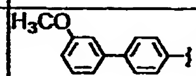
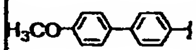
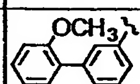
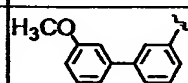
No.	R1	R2	R3	R4	R5	R6
XA752	CH3–		H	CH3	H	H
XA753	CH3–		H	CH3	H	H
XA754	CH3–		H	CH3	H	H
XA755	CH3–		H	CH3	H	H
XA756	CH3–		H	CH3	H	H
XA757	CH3–		H	CH3	H	H
XA758	CH3–		H	CH3	H	H
XA759	CH3–		H	CH3	H	H
XA760	CH3–		H	CH3	H	H
XA761	CH3–		H	CH3	H	H
XA762	CH3–		H	CH3	H	H
XA763	CH3–		H	CH3	H	H
XA764	CH3–		H	CH3	H	H
XA765	CH3–		H	CH3	H	H
XA766	CH3–		H	CH3	H	H

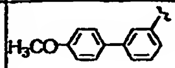
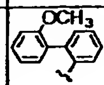
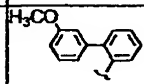
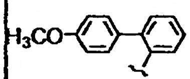
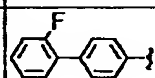
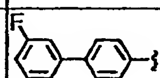
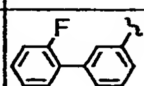
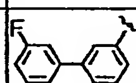
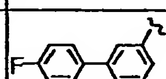
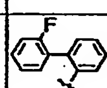
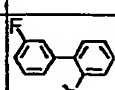
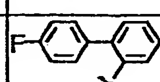
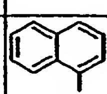
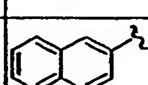
No.	R1	R2	R3	R4	R5	R6
XA767	CH3-		H	CH3	H	H
XA768	CH3-		H	CH3	H	H
XA769	CH3-		H	CH3	H	H
XA770	CH3-		H	CH3	H	H
XA771	CH3-		H	CH3	H	H
XA772	CH3-		H	CH3	H	H
XA773	CH3-		H	CH3	H	H

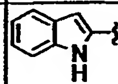
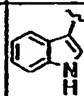
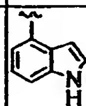
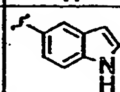
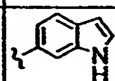
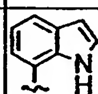
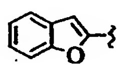
No.	R1	R2	R3	R4	R5	R6
XA774	CH3–		H	CH3	H	H
XA775	CH3–		H	CH3	H	H
XA776	CH3–		H	CH3	H	H
XA777	CH3–		H	CH3	H	H
XA778	CH3–		H	CH3	H	H
XA779	CH3–		H	CH3	H	H
XA780	CH3–		H	CH3	H	H
XA781	CH3–		H	CH3	H	H
XA782	CH3–		H	CH3	H	H
XA783	CH3–		H	CH3	H	H
XA784	CH3–		H	CH3	H	H
XA785	CH3–		H	CH3	H	H
XA786	CH3–		H	CH3	H	H
XA787	CH3–		H	CH3	H	H
XA788	CH3–		H	CH3	H	H

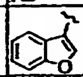
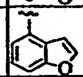
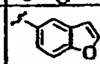
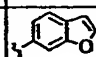
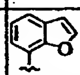
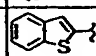
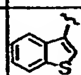
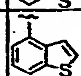
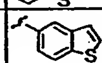
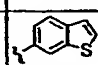
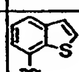
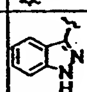
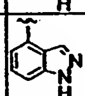
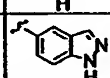
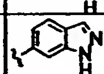
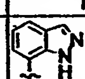
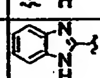
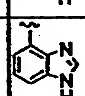
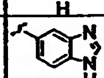
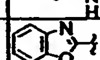
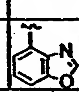
No.	R1	R2	R3	R4	R5	R6
XA789	CH3–		H	CH3	H	H
XA790	CH3–		H	CH3	H	H
XA791	CH3–		H	CH3	H	H
XA792	CH3–		H	CH3	H	H
XA793	CH3–		H	CH3	H	H
XA794	CH3–		H	CH3	H	H
XA795	CH3–		H	CH3	H	H

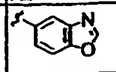
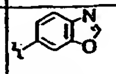
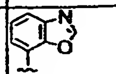
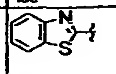
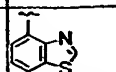
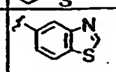
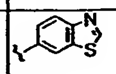
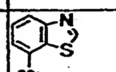
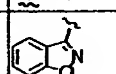
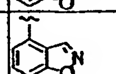
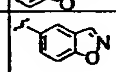
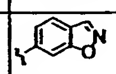
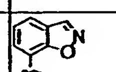
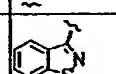
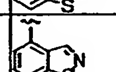
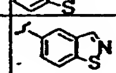
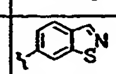
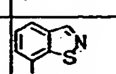
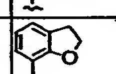
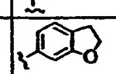
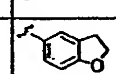
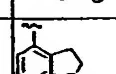
No.	R1	R2	R3	R4	R5	R6
XA796	CH3–		H	CH3	H	H
XA797	CH3–		H	CH3	H	H
XA798	CH3–		H	CH3	H	H
XA799	CH3–		H	CH3	H	H
XA800	CH3–		H	CH3	H	H
XA801	CH3–		H	CH3	H	H
XA802	CH3–		H	CH3	H	H
XA803	CH3–		H	CH3	H	H
XA804	CH3–		H	CH3	H	H
XA805	CH3–		H	CH3	H	H
XA806	CH3–		H	CH3	H	H
XA807	CH3–		H	CH3	H	H
XA808	CH3–		H	CH3	H	H
XA809	CH3–		H	CH3	H	H
XA810	CH3–		H	CH3	H	H

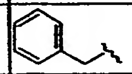
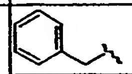
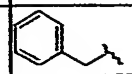
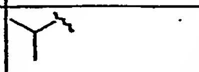
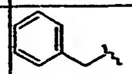
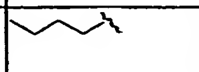
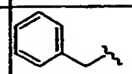
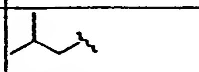
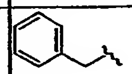
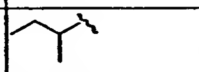
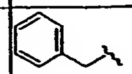
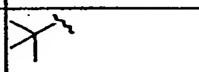
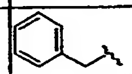
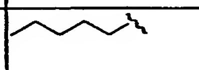
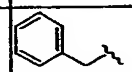
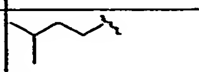
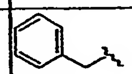
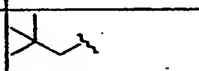
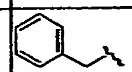
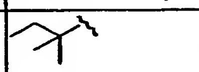
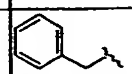
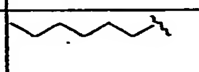
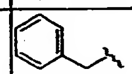
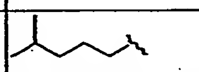
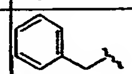
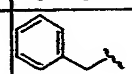
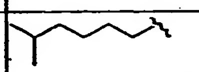
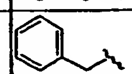
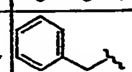
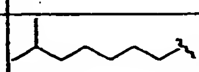
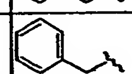
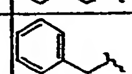
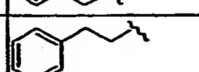
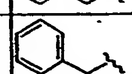
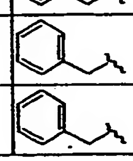
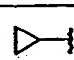
No.	R1	R2	R3	R4	R5	R6
XA811	CH3-		H	CH3	H	H
XA812	CH3-		H	CH3	H	H
XA813	CH3-		H	CH3	H	H
XA814	CH3-		H	CH3	H	H
XA815	CH3-		H	CH3	H	H
XA816	CH3-		H	CH3	H	H
XA817	CH3-		H	CH3	H	H

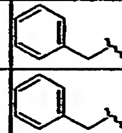
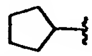
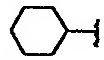
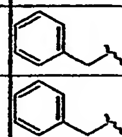
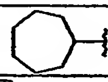
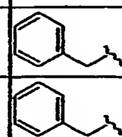
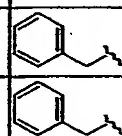
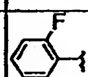
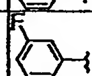
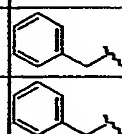
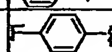
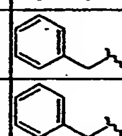
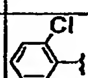
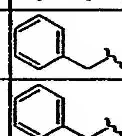
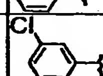
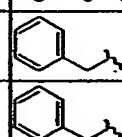
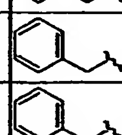
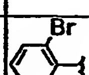
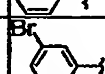
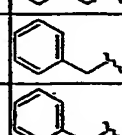
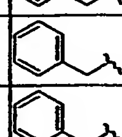
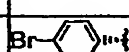
No.	R1	R2	R3	R4	R5	R6
XA818	CH3-		H	CH3	H	H
XA819	CH3-		H	CH3	H	H
XA820	CH3-		H	CH3	H	H
XA821	CH3-		H	CH3	H	H
XA822	CH3-		H	CH3	H	H
XA823	CH3-		H	CH3	H	H
XA824	CH3-		H	CH3	H	H
XA825	CH3-		H	CH3	H	H
XA826	CH3-		H	CH3	H	H
XA827	CH3-		H	CH3	H	H
XA828	CH3-		H	CH3	H	H
XA829	CH3-		H	CH3	H	H
XA830	CH3-		H	CH3	H	H
XA831	CH3-		H	CH3	H	H
XA832	CH3-		H	CH3	H	H

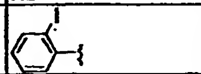
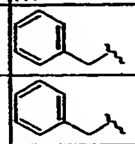
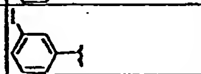
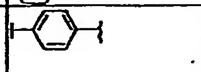
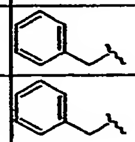
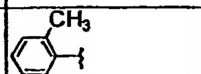
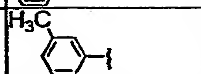
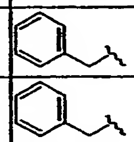
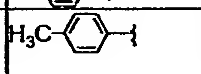
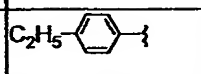
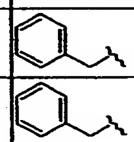
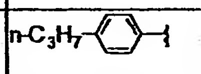
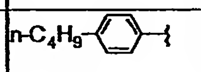
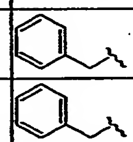
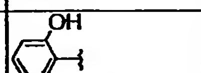
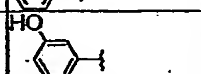
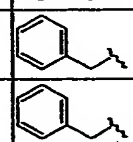
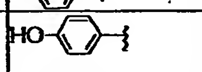
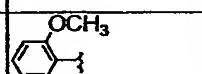
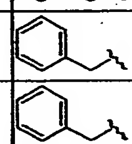
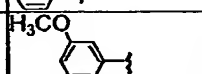
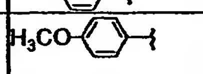
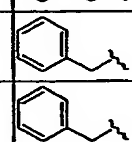
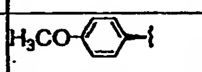
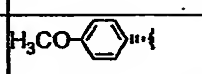
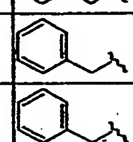
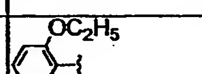
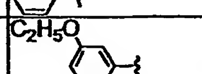
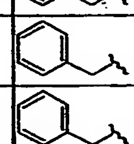
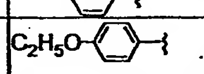
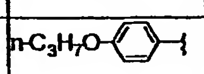
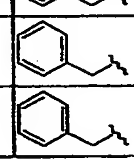
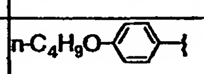
No.	R1	R2	R3	R4	R5	R6
XA833	CH3-		H	CH3	H	H
XA834	CH3-		H	CH3	H	H
XA835	CH3-		H	CH3	H	H
XA836	CH3-		H	CH3	H	H
XA837	CH3-		H	CH3	H	H
XA838	CH3-		H	CH3	H	H
XA839	CH3-		H	CH3	H	H

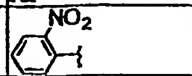
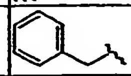
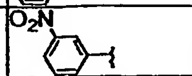
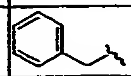
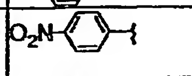
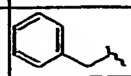
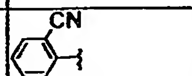
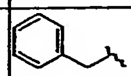
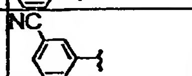
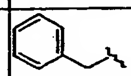
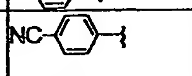
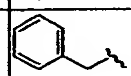
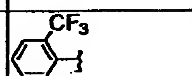
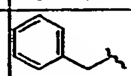
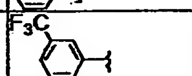
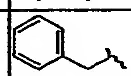
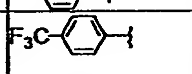
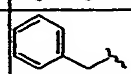
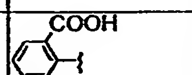
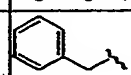
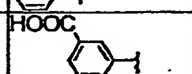
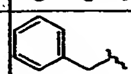
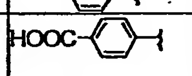
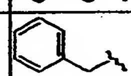
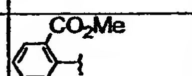
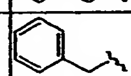
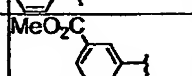
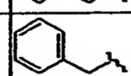
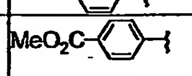
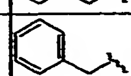
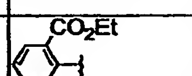
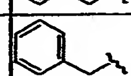
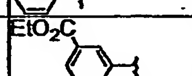
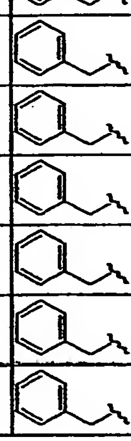
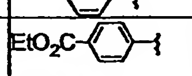
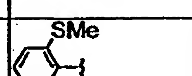
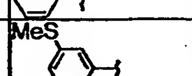
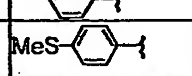
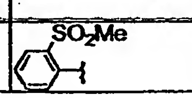
No.	R1	R2	R3	R4	R5	R6
XA840	CH3–		H	CH3	H	H
XA841	CH3–		H	CH3	H	H
XA842	CH3–		H	CH3	H	H
XA843	CH3–		H	CH3	H	H
XA844	CH3–		H	CH3	H	H
XA845	CH3–		H	CH3	H	H
XA846	CH3–		H	CH3	H	H
XA847	CH3–		H	CH3	H	H
XA848	CH3–		H	CH3	H	H
XA849	CH3–		H	CH3	H	H
XA850	CH3–		H	CH3	H	H
XA851	CH3–		H	CH3	H	H
XA852	CH3–		H	CH3	H	H
XA853	CH3–		H	CH3	H	H
XA854	CH3–		H	CH3	H	H
XA855	CH3–		H	CH3	H	H
XA856	CH3–		H	CH3	H	H
XA857	CH3–		H	CH3	H	H
XA858	CH3–		H	CH3	H	H
XA859	CH3–		H	CH3	H	H
XA860	CH3–		H	CH3	H	H

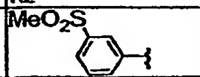
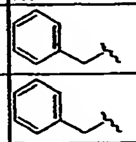
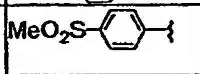
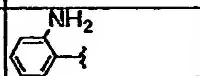
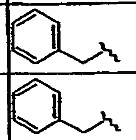
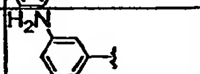
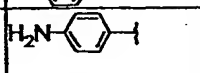
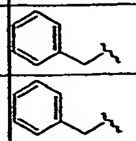
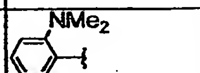
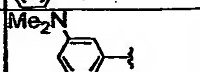
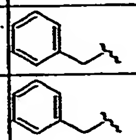
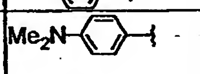
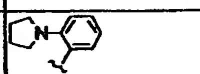
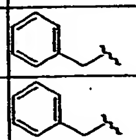
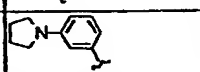
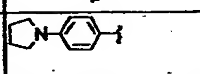
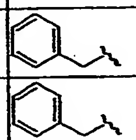
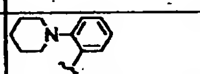
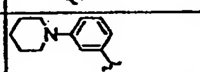
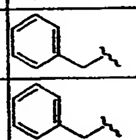
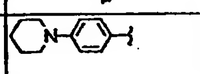
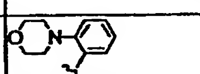
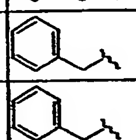
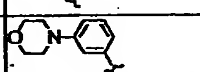
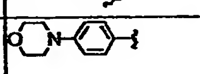
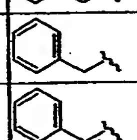
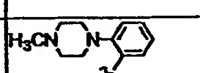
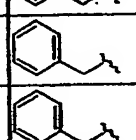
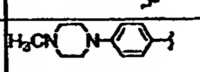
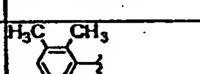
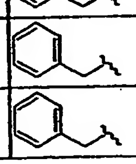
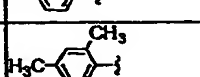
No.	R1	R2	R3	R4	R5	R6
XA861	CH3–		H	CH3	H	H
XA862	CH3–		H	CH3	H	H
XA863	CH3–		H	CH3	H	H
XA864	CH3–		H	CH3	H	H
XA865	CH3–		H	CH3	H	H
XA866	CH3–		H	CH3	H	H
XA867	CH3–		H	CH3	H	H
XA868	CH3–		H	CH3	H	H
XA869	CH3–		H	CH3	H	H
XA870	CH3–		H	CH3	H	H
XA871	CH3–		H	CH3	H	H
XA872	CH3–		H	CH3	H	H
XA873	CH3–		H	CH3	H	H
XA874	CH3–		H	CH3	H	H
XA875	CH3–		H	CH3	H	H
XA876	CH3–		H	CH3	H	H
XA877	CH3–		H	CH3	H	H
XA878	CH3–		H	CH3	H	H
XA879	CH3–		H	CH3	H	H
XA880	CH3–		H	CH3	H	H
XA881	CH3–		H	CH3	H	H
XA882	CH3–		H	CH3	H	H

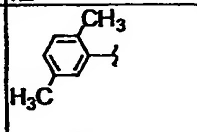
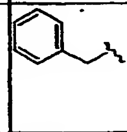
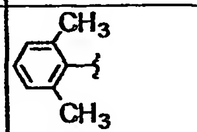
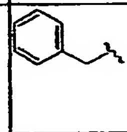
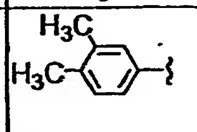
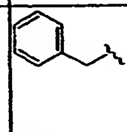
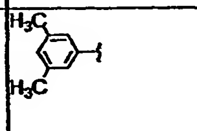
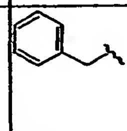
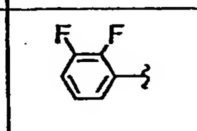
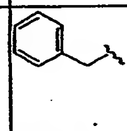
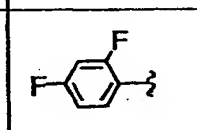
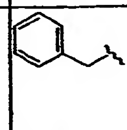
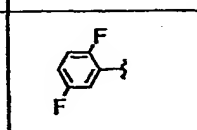
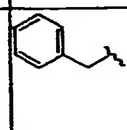
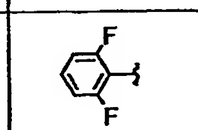
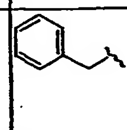
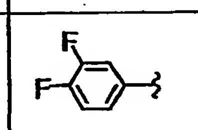
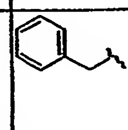
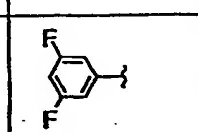
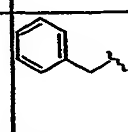
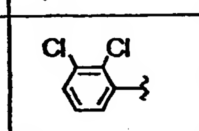
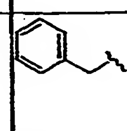
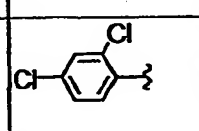
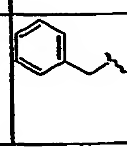
No.	R1	R2	R3	R4	R5	R6
XA883	CH3–	CH3–	H		H	H
XA884	CH3–	CH3CH2–	H		H	H
XA885	CH3–		H		H	H
XA886	CH3–		H		H	H
XA887	CH3–		H		H	H
XA888	CH3–		H		H	H
XA889	CH3–		H		H	H
XA890	CH3–		H		H	H
XA891	CH3–		H		H	H
XA892	CH3–		H		H	H
XA893	CH3–		H		H	H
XA894	CH3–		H		H	H
XA895	CH3–		H		H	H
XA896	CH3–		H		H	H
XA897	CH3–		H		H	H
XA898	CH3–		H		H	H
XA899	CH3–	n-C8H17–	H		H	H
XA900	CH3–		H		H	H
XA901	CH3–		H		H	H
XA902	CH3–		H		H	H
XA903	CH3–		H		H	H
XA904	CH3–		H		H	H

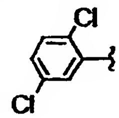
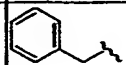
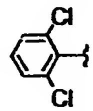
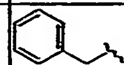
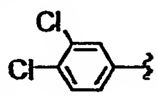
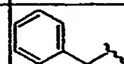
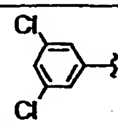
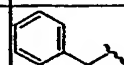
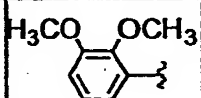
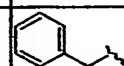
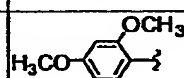
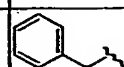
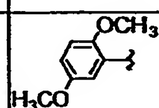
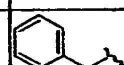
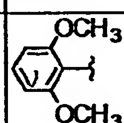
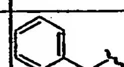
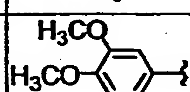
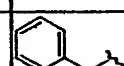
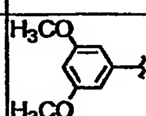
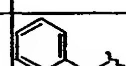
No.	R1	R2	R3	R4	R5	R6
XA905	CH3–		H		H	H
XA906	CH3–		H		H	H
XA907	CH3–		H		H	H
XA908	CH3–		H		H	H
XA909	CH3–		H		H	H
XA910	CH3–		H		H	H
XA911	CH3–		H		H	H
XA912	CH3–		H		H	H
XA913	CH3–		H		H	H
XA914	CH3–		H		H	H
XA915	CH3–		H		H	H
XA916	CH3–		H		H	H
XA917	CH3–		H		H	H
XA918	CH3–		H		H	H
XA919	CH3–		H		H	H
XA920	CH3–		H		H	H
XA921	CH3–		H		H	H
XA922	CH3–		H		H	H
XA923	CH3–		H		H	H
XA924	CH3–		H		H	H
XA925	CH3–		H		H	H
XA926	CH3–		H		H	H

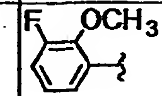
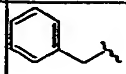
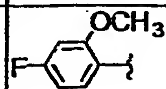
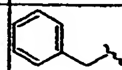
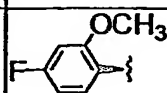
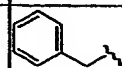
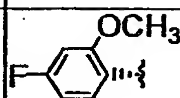
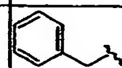
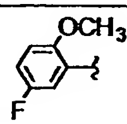
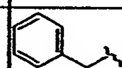
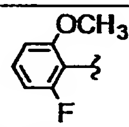
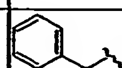
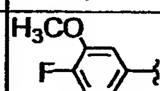
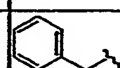
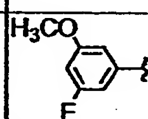
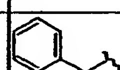
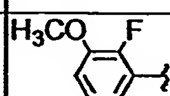
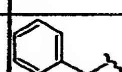
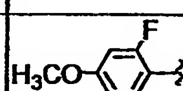
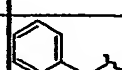
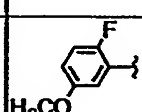
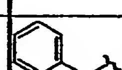
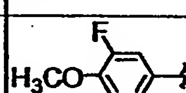
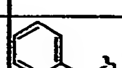
No.	R1	R2	R3	R4	R5	R6
XA927	CH3-		H		H	H
XA928	CH3-		H		H	H
XA929	CH3-		H		H	H
XA930	CH3-		H		H	H
XA931	CH3-		H		H	H
XA932	CH3-		H		H	H
XA933	CH3-		H		H	H
XA934	CH3-		H		H	H
XA935	CH3-		H		H	H
XA936	CH3-		H		H	H
XA937	CH3-		H		H	H
XA938	CH3-		H		H	H
XA939	CH3-		H		H	H
XA940	CH3-		H		H	H
XA941	CH3-		H		H	H
XA942	CH3-		H		H	H
XA943	CH3-		H		H	H
XA944	CH3-		H		H	H
XA945	CH3-		H		H	H
XA946	CH3-		H		H	H
XA947	CH3-		H		H	H
XA948	CH3-		H		H	H

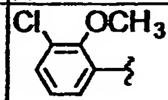
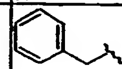
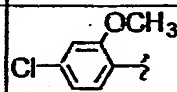
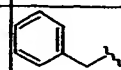
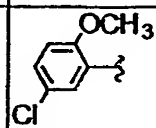
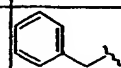
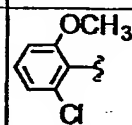
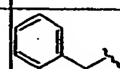
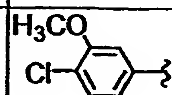
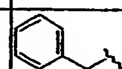
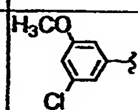
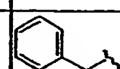
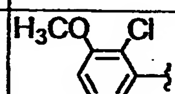
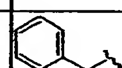
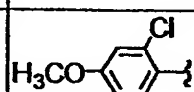
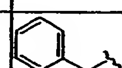
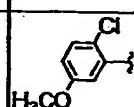
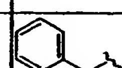
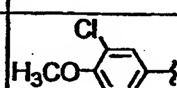
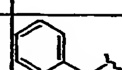
No.	R1	R2	R3	R4	R5	R6
XA949	CH3–		H		H	H
XA950	CH3–		H		H	H
XA951	CH3–		H		H	H
XA952	CH3–		H		H	H
XA953	CH3–		H		H	H
XA954	CH3–		H		H	H
XA955	CH3–		H		H	H
XA956	CH3–		H		H	H
XA957	CH3–		H		H	H
XA958	CH3–		H		H	H
XA959	CH3–		H		H	H
XA960	CH3–		H		H	H
XA961	CH3–		H		H	H
XA962	CH3–		H		H	H
XA963	CH3–		H		H	H
XA964	CH3–		H		H	H
XA965	CH3–		H		H	H
XA966	CH3–		H		H	H
XA967	CH3–		H		H	H
XA968	CH3–		H		H	H
XA969	CH3–		H		H	H
XA970	CH3–		H		H	H

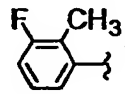
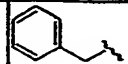
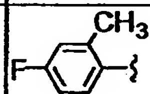
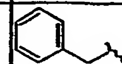
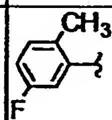
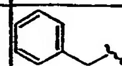
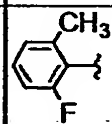
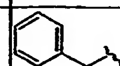
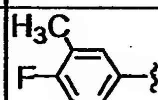
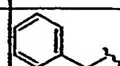
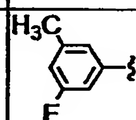
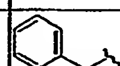
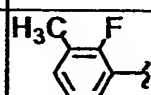
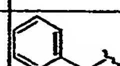
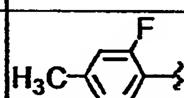
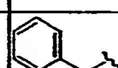
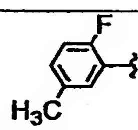
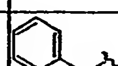
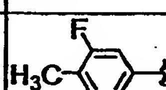
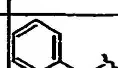
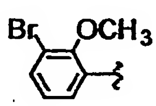
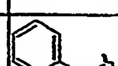
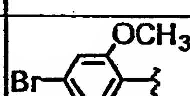
No.	R1	R2	R3	R4	R5	R6
XA971	CH3-		H		H	H
XA972	CH3-		H		H	H
XA973	CH3-		H		H	H
XA974	CH3-		H		H	H
XA975	CH3-		H		H	H
XA976	CH3-		H		H	H
XA977	CH3-		H		H	H
XA978	CH3-		H		H	H
XA979	CH3-		H		H	H
XA980	CH3-		H		H	H
XA981	CH3-		H		H	H
XA982	CH3-		H		H	H
XA983	CH3-		H		H	H
XA984	CH3-		H		H	H
XA985	CH3-		H		H	H
XA986	CH3-		H		H	H
XA987	CH3-		H		H	H
XA988	CH3-		H		H	H
XA989	CH3-		H		H	H
XA990	CH3-		H		H	H
XA991	CH3-		H		H	H
XA992	CH3-		H		H	H

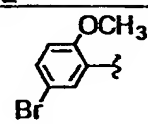
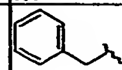
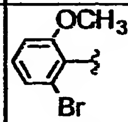
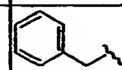
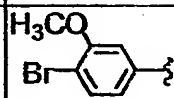
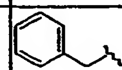
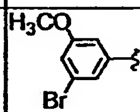
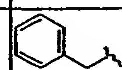
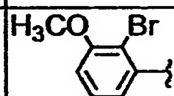
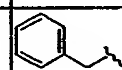
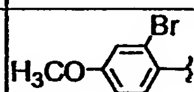
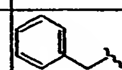
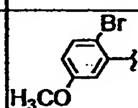
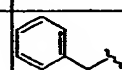
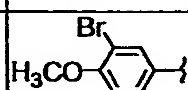
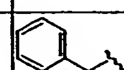
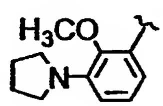
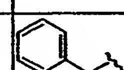
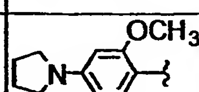
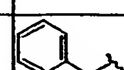
No.	R1	R2	R3	R4	R5	R6
XA993	CH3-		H		H	H
XA994	CH3-		H		H	H
XA995	CH3-		H		H	H
XA996	CH3-		H		H	H
XA997	CH3-		H		H	H
XA998	CH3-		H		H	H
XA999	CH3-		H		H	H
XA1000	CH3-		H		H	H
XA1001	CH3-		H		H	H
XA1002	CH3-		H		H	H
XA1003	CH3-		H		H	H
XA1004	CH3-		H		H	H

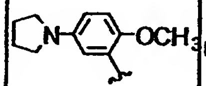
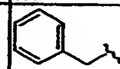
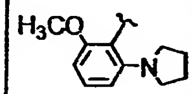
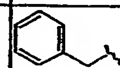
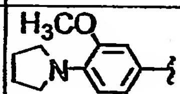
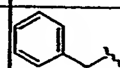
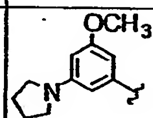
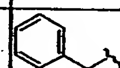
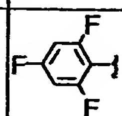
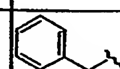
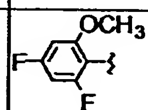
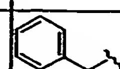
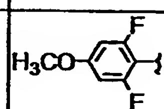
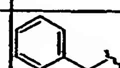
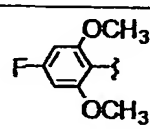
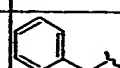
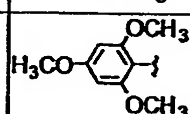
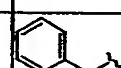
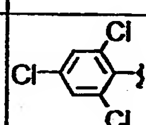
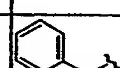
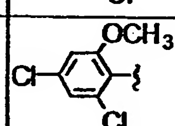
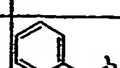
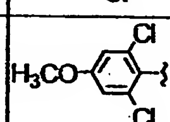
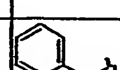
No.	R1	R2	R3	R4	R5	R6
XA1005	CH3-		H		H	H
XA1006	CH3-		H		H	H
XA1007	CH3-		H		H	H
XA1008	CH3-		H		H	H
XA1009	CH3-		H		H	H
XA1010	CH3-		H		H	H
XA1011	CH3-		H		H	H
XA1012	CH3-		H		H	H
XA1013	CH3-		H		H	H
XA1014	CH3-		H		H	H

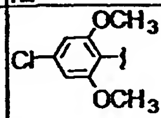
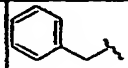
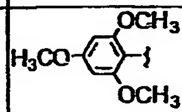
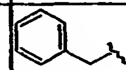
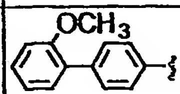
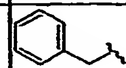
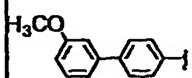
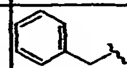
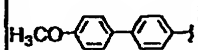
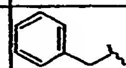
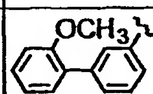
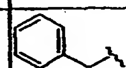
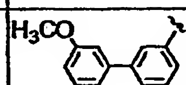
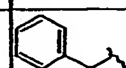
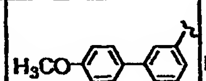
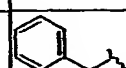
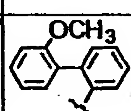
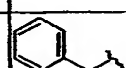
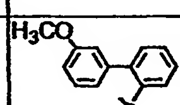
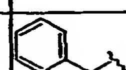
No.	R1	R2	R3	R4	R5	R6
XA1015	CH3-		H		H	H
XA1016	CH3-		H		H	H
XA1017	CH3-		H		H	H
XA1018	CH3-		H		H	H
XA1019	CH3-		H		H	H
XA1020	CH3-		H		H	H
XA1021	CH3-		H		H	H
XA1022	CH3-		H		H	H
XA1023	CH3-		H		H	H
XA1024	CH3-		H		H	H
XA1025	CH3-		H		H	H
XA1026	CH3-		H		H	H

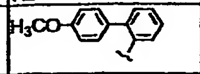
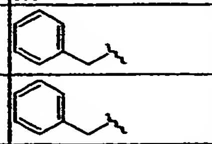
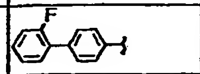
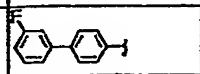
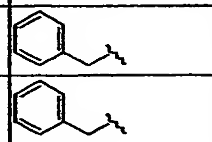
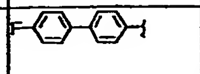
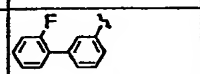
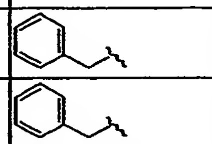
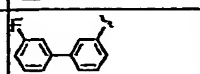
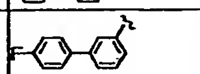
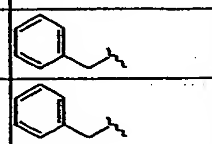
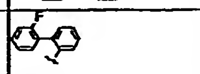
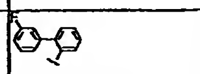
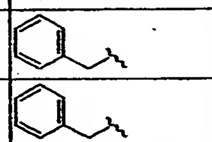
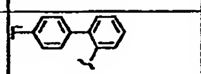
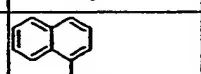
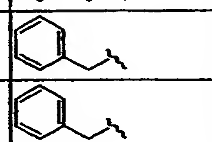
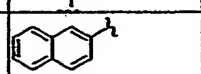
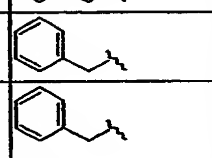
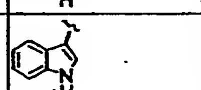
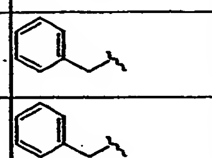
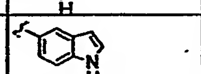
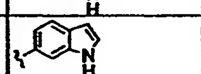
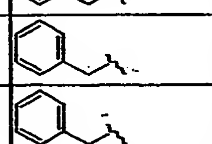
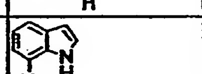
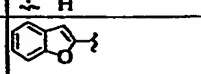
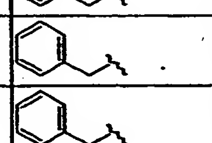
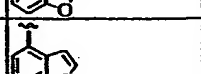
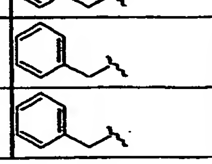
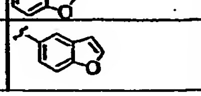
No.	R1	R2	R3	R4	R5	R6
XA1027	CH3–		H		H	H
XA1028	CH3–		H		H	H
XA1029	CH3–		H		H	H
XA1030	CH3–		H		H	H
XA1031	CH3–		H		H	H
XA1032	CH3–		H		H	H
XA1033	CH3–		H		H	H
XA1034	CH3–		H		H	H
XA1035	CH3–		H		H	H
XA1036	CH3–		H		H	H

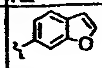
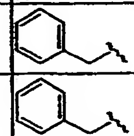
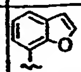
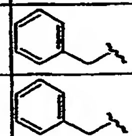
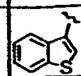
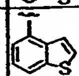
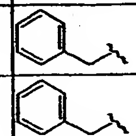
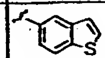
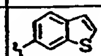
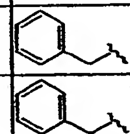
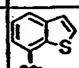
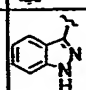
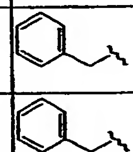
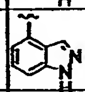
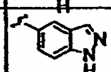
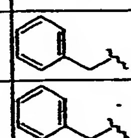
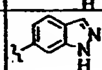
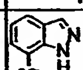
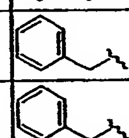
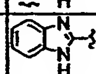
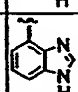
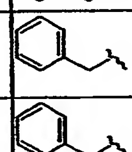
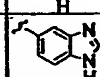
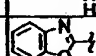
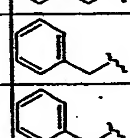
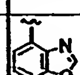
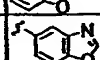
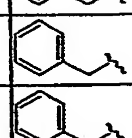
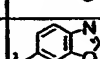
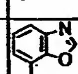
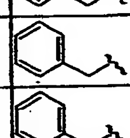
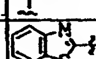
No.	R1	R2	R3	R4	R5	R6
XA1037	CH3-		H		H	H
XA1038	CH3-		H		H	H
XA1039	CH3-		H		H	H
XA1040	CH3-		H		H	H
XA1041	CH3-		H		H	H
XA1042	CH3-		H		H	H
XA1043	CH3-		H		H	H
XA1044	CH3-		H		H	H
XA1045	CH3-		H		H	H
XA1046	CH3-		H		H	H
XA1047	CH3-		H		H	H
XA1048	CH3-		H		H	H

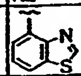
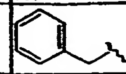
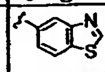
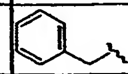
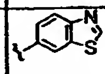
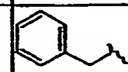
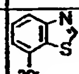
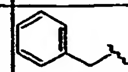
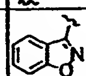
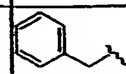
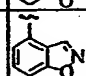
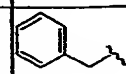
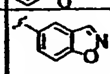
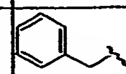
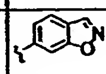
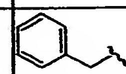
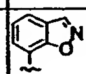
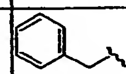
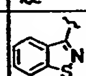
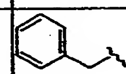
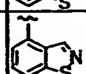
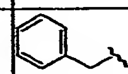
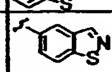
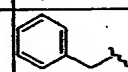
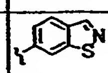
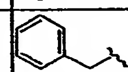
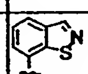
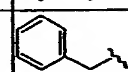
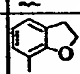
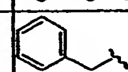
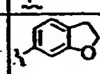
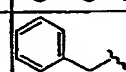
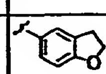
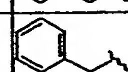
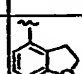
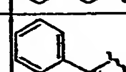
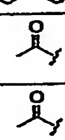
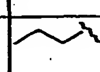
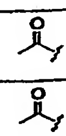
No.	R1	R2	R3	R4	R5	R6
XA1049	CH3–		H		H	H
XA1050	CH3–		H		H	H
XA1051	CH3–		H		H	H
XA1052	CH3–		H		H	H
XA1053	CH3–		H		H	H
XA1054	CH3–		H		H	H
XA1055	CH3–		H		H	H
XA1056	CH3–		H		H	H
XA1057	CH3–		H		H	H
XA1058	CH3–		H		H	H

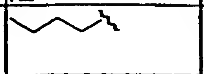
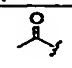
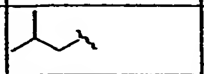
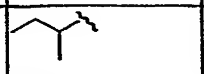
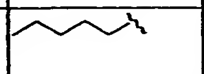
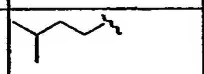
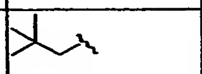
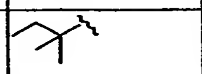
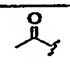
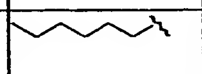
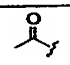
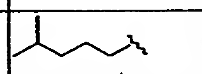
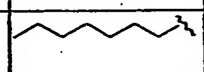
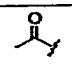
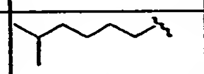
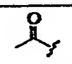
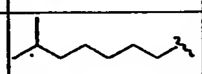
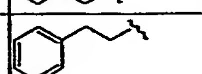
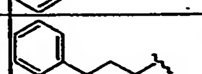
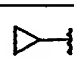
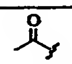
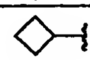
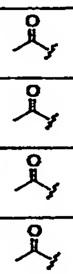
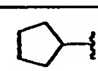
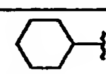
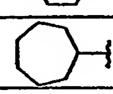
No.	R1	R2	R3	R4	R5	R6
XA1059	CH3–		H		H	H
XA1060	CH3–		H		H	H
XA1061	CH3–		H		H	H
XA1062	CH3–		H		H	H
XA1063	CH3–		H		H	H
XA1064	CH3–		H		H	H
XA1065	CH3–		H		H	H
XA1066	CH3–		H		H	H
XA1067	CH3–		H		H	H
XA1068	CH3–		H		H	H
XA1069	CH3–		H		H	H
XA1070	CH3–		H		H	H

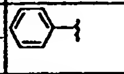
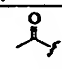
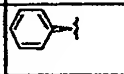
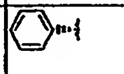
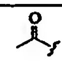
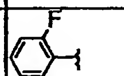
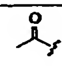
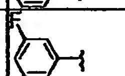
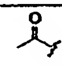
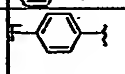
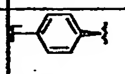
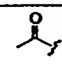
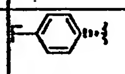
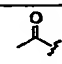
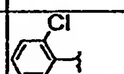
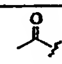
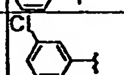
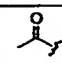
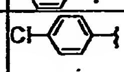
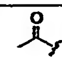
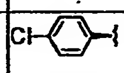
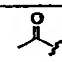
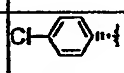
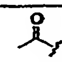
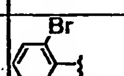
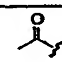
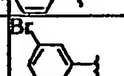
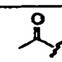
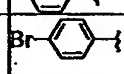
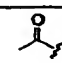
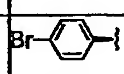
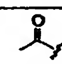
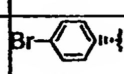
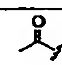
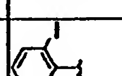
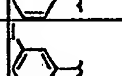
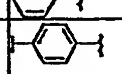
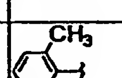
No.	R1	R2	R3	R4	R5	R6
XA1071	CH3–		H		H	H
XA1072	CH3–		H		H	H
XA1073	CH3–		H		H	H
XA1074	CH3–		H		H	H
XA1075	CH3–		H		H	H
XA1076	CH3–		H		H	H
XA1077	CH3–		H		H	H
XA1078	CH3–		H		H	H
XA1079	CH3–		H		H	H
XA1080	CH3–		H		H	H

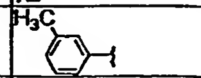
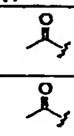
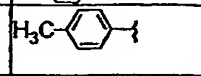
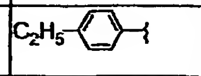
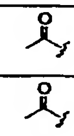
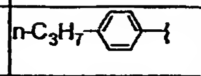
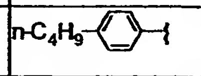
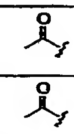
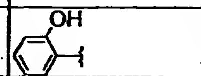
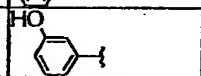
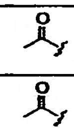
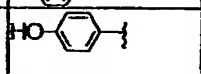
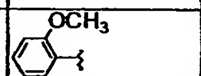
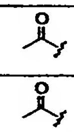
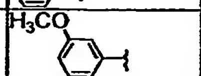
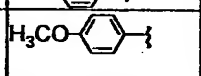
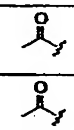
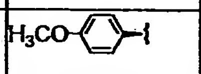
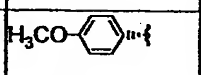
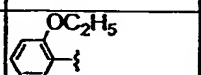
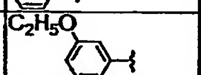
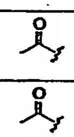
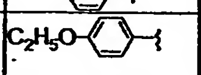
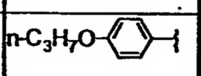
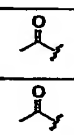
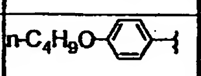
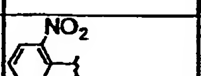
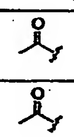
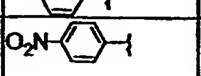
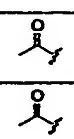
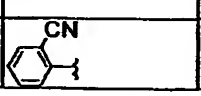
No.	R1	R2	R3	R4	R5	R6
XA1081	CH3–		H		H	H
XA1082	CH3–		H		H	H
XA1083	CH3–		H		H	H
XA1084	CH3–		H		H	H
XA1085	CH3–		H		H	H
XA1086	CH3–		H		H	H
XA1087	CH3–		H		H	H
XA1088	CH3–		H		H	H
XA1089	CH3–		H		H	H
XA1090	CH3–		H		H	H
XA1091	CH3–		H		H	H
XA1092	CH3–		H		H	H
XA1093	CH3–		H		H	H
XA1094	CH3–		H		H	H
XA1095	CH3–		H		H	H
XA1096	CH3–		H		H	H
XA1097	CH3–		H		H	H
XA1098	CH3–		H		H	H
XA1099	CH3–		H		H	H
XA1100	CH3–		H		H	H
XA1101	CH3–		H		H	H
XA1102	CH3–		H		H	H

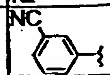
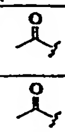
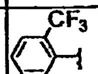
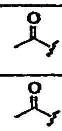
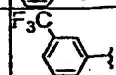
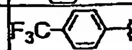
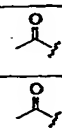
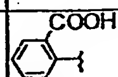
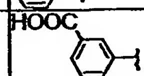
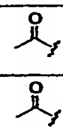
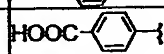
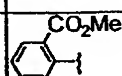
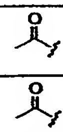
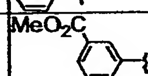
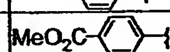
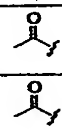
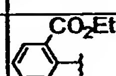
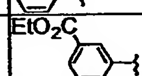
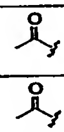
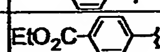
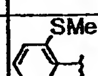
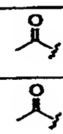
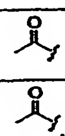
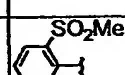
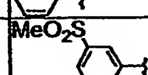
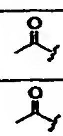
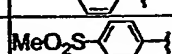
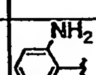
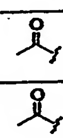
No.	R1	R2	R3	R4	R5	R6
XA1103	CH3-		H		H	H
XA1104	CH3-		H		H	H
XA1105	CH3-		H		H	H
XA1106	CH3-		H		H	H
XA1107	CH3-		H		H	H
XA1108	CH3-		H		H	H
XA1109	CH3-		H		H	H
XA1110	CH3-		H		H	H
XA1111	CH3-		H		H	H
XA1112	CH3-		H		H	H
XA1113	CH3-		H		H	H
XA1114	CH3-		H		H	H
XA1115	CH3-		H		H	H
XA1116	CH3-		H		H	H
XA1117	CH3-		H		H	H
XA1118	CH3-		H		H	H
XA1119	CH3-		H		H	H
XA1120	CH3-		H		H	H
XA1121	CH3-		H		H	H
XA1122	CH3-		H		H	H
XA1123	CH3-		H		H	H
XA1124	CH3-		H		H	H

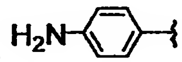
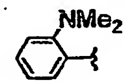
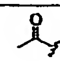
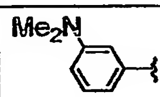
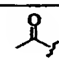
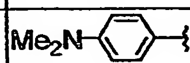
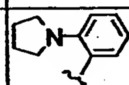
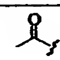
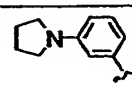
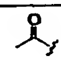
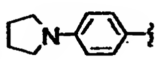
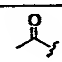
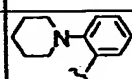
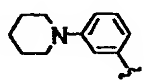
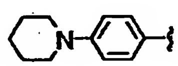
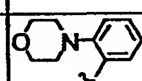
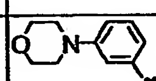
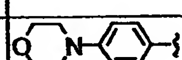
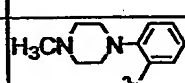
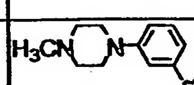
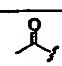
No.	R1	R2	R3	R4	R5	R6
XA1125	CH3-		H		H	H
XA1126	CH3-		H		H	H
XA1127	CH3-		H		H	H
XA1128	CH3-		H		H	H
XA1129	CH3-		H		H	H
XA1130	CH3-		H		H	H
XA1131	CH3-		H		H	H
XA1132	CH3-		H		H	H
XA1133	CH3-		H		H	H
XA1134	CH3-		H		H	H
XA1135	CH3-		H		H	H
XA1136	CH3-		H		H	H
XA1137	CH3-		H		H	H
XA1138	CH3-		H		H	H
XA1139	CH3-		H		H	H
XA1140	CH3-		H		H	H
XA1141	CH3-		H		H	H
XA1142	CH3-		H		H	H
XA1143	CH3-	CH3-	H		H	H
XA1144	CH3-	CH3CH2-	H		H	H
XA1145	CH3-		H		H	H
XA1146	CH3-		H		H	H

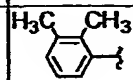
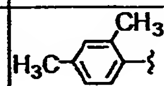
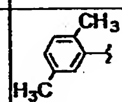
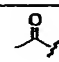
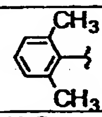
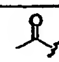
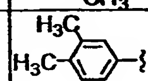
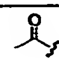
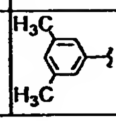
No.	R1	R2	R3	R4	R5	R6
XA1147	CH3-		H		H	H
XA1148	CH3-		H		H	H
XA1149	CH3-		H		H	H
XA1150	CH3-		H		H	H
XA1151	CH3-		H		H	H
XA1152	CH3-		H		H	H
XA1153	CH3-		H		H	H
XA1154	CH3-		H		H	H
XA1155	CH3-		H		H	H
XA1156	CH3-		H		H	H
XA1157	CH3-		H		H	H
XA1158	CH3-		H		H	H
XA1159	CH3-	n-C8H17-	H		H	H
XA1160	CH3-		H		H	H
XA1161	CH3-		H		H	H
XA1162	CH3-		H		H	H
XA1163	CH3-		H		H	H
XA1164	CH3-		H		H	H
XA1165	CH3-		H		H	H
XA1166	CH3-		H		H	H
XA1167	CH3-		H		H	H
XA1168	CH3-		H		H	H

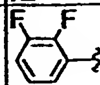
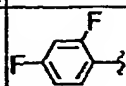
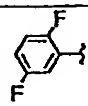
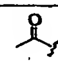
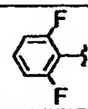
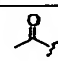
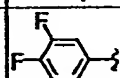
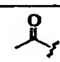
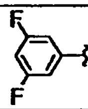
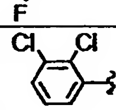
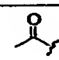
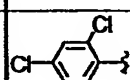
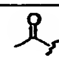
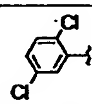
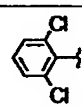
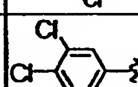
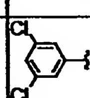
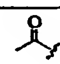
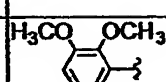
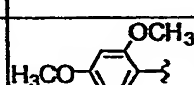
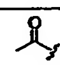
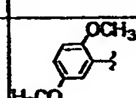
No.	R1	R2	R3	R4	R5	R6
XA1169	CH3-		H		H	H
XA1170	CH3-		H		H	H
XA1171	CH3-		H		H	H
XA1172	CH3-		H		H	H
XA1173	CH3-		H		H	H
XA1174	CH3-		H		H	H
XA1175	CH3-		H		H	H
XA1176	CH3-		H		H	H
XA1177	CH3-		H		H	H
XA1178	CH3-		H		H	H
XA1179	CH3-		H		H	H
XA1180	CH3-		H		H	H
XA1181	CH3-		H		H	H
XA1182	CH3-		H		H	H
XA1183	CH3-		H		H	H
XA1184	CH3-		H		H	H
XA1185	CH3-		H		H	H
XA1186	CH3-		H		H	H
XA1187	CH3-		H		H	H
XA1188	CH3-		H		H	H
XA1189	CH3-		H		H	H
XA1190	CH3-		H		H	H

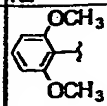
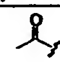
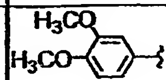
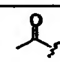
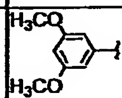
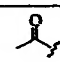
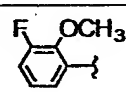
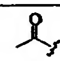
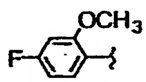
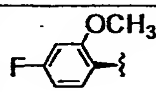
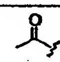
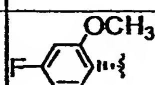
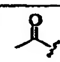
No.	R1	R2	R3	R4	R5	R6
XA1191	CH3–		H		H	H
XA1192	CH3–		H		H	H
XA1193	CH3–		H		H	H
XA1194	CH3–		H		H	H
XA1195	CH3–		H		H	H
XA1196	CH3–		H		H	H
XA1197	CH3–		H		H	H
XA1198	CH3–		H		H	H
XA1199	CH3–		H		H	H
XA1200	CH3–		H		H	H
XA1201	CH3–		H		H	H
XA1202	CH3–		H		H	H
XA1203	CH3–		H		H	H
XA1204	CH3–		H		H	H
XA1205	CH3–		H		H	H
XA1206	CH3–		H		H	H
XA1207	CH3–		H		H	H
XA1208	CH3–		H		H	H
XA1209	CH3–		H		H	H
XA1210	CH3–		H		H	H
XA1211	CH3–		H		H	H
XA1212	CH3–		H		H	H

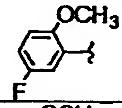
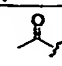
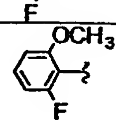
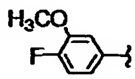
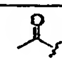
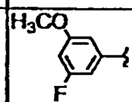
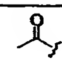
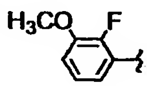
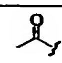
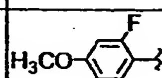
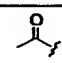
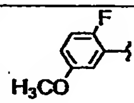
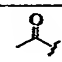
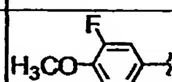
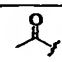
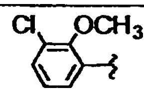
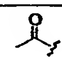
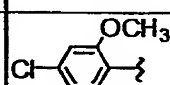
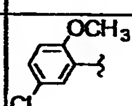
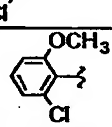
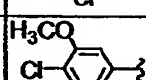
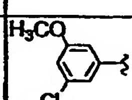
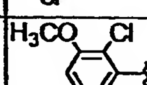
No.	R1	R2	R3	R4	R5	R6
XA1213	CH3–		H		H	H
XA1214	CH3–		H		H	H
XA1215	CH3–		H		H	H
XA1216	CH3–		H		H	H
XA1217	CH3–		H		H	H
XA1218	CH3–		H		H	H
XA1219	CH3–		H		H	H
XA1220	CH3–		H		H	H
XA1221	CH3–		H		H	H
XA1222	CH3–		H		H	H
XA1223	CH3–		H		H	H
XA1224	CH3–		H		H	H
XA1225	CH3–		H		H	H
XA1226	CH3–		H		H	H
XA1227	CH3–		H		H	H
XA1228	CH3–		H		H	H
XA1229	CH3–		H		H	H
XA1230	CH3–		H		H	H
XA1231	CH3–		H		H	H
XA1232	CH3–		H		H	H
XA1233	CH3–		H		H	H
XA1234	CH3–		H		H	H

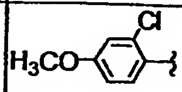
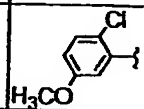
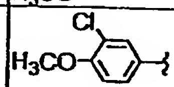
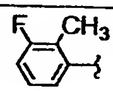
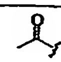
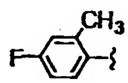
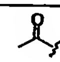
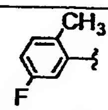
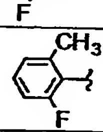
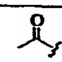
No.	R1	R2	R3	R4	R5	R6
XA1235	CH3–		H		H	H
XA1236	CH3–		H		H	H
XA1237	CH3–		H		H	H
XA1238	CH3–		H		H	H
XA1239	CH3–		H		H	H
XA1240	CH3–		H		H	H
XA1241	CH3–		H		H	H
XA1242	CH3–		H		H	H
XA1243	CH3–		H		H	H
XA1244	CH3–		H		H	H
XA1245	CH3–		H		H	H
XA1246	CH3–		H		H	H
XA1247	CH3–		H		H	H
XA1248	CH3–		H		H	H
XA1249	CH3–		H		H	H

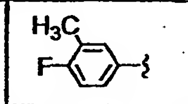
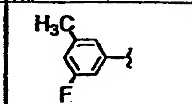
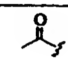
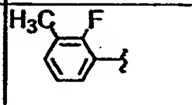
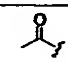
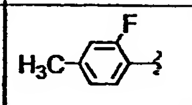
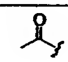
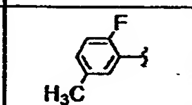
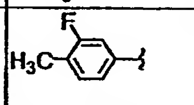
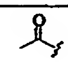
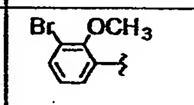
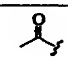
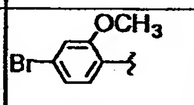
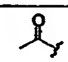
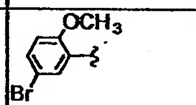
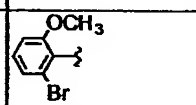
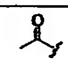
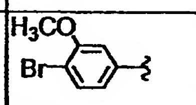
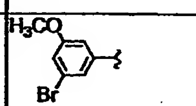
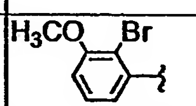
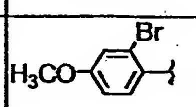
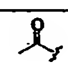
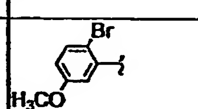
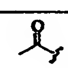
No.	R1	R2	R3	R4	R5	R6
XA1250	CH3-		H		H	H
XA1251	CH3-		H		H	H
XA1252	CH3-		H		H	H
XA1253	CH3-		H		H	H
XA1254	CH3-		H		H	H
XA1255	CH3-		H		H	H
XA1256	CH3-		H		H	H

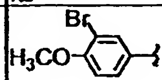
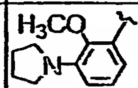
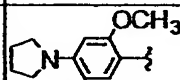
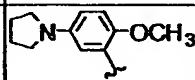
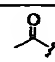
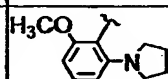
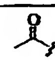
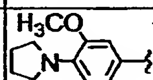
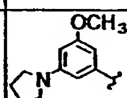
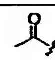
No.	R1	R2	R3	R4	R5	R6
XA1257	CH3–		H		H	H
XA1258	CH3–		H		H	H
XA1259	CH3–		H		H	H
XA1260	CH3–		H		H	H
XA1261	CH3–		H		H	H
XA1262	CH3–		H		H	H
XA1263	CH3–		H		H	H
XA1264	CH3–		H		H	H
XA1265	CH3–		H		H	H
XA1266	CH3–		H		H	H
XA1267	CH3–		H		H	H
XA1268	CH3–		H		H	H
XA1269	CH3–		H		H	H
XA1270	CH3–		H		H	H
XA1271	CH3–		H		H	H

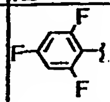
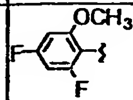
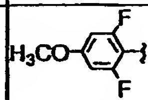
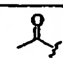
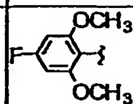
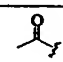
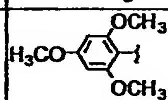
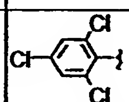
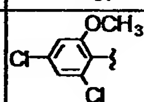
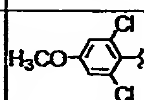
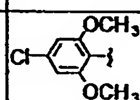
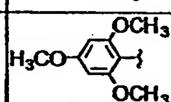
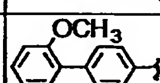
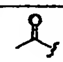
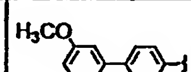
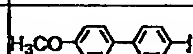
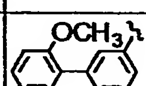
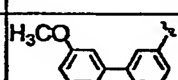
No.	R1	R2	R3	R4	R5	R6
XA1272	CH3–		H		H	H
XA1273	CH3–		H		H	H
XA1274	CH3–		H		H	H
XA1275	CH3–		H		H	H
XA1276	CH3–		H		H	H
XA1277	CH3–		H		H	H
XA1278	CH3–		H		H	H

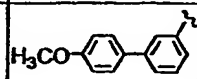
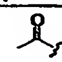
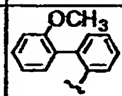
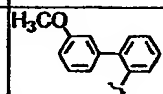
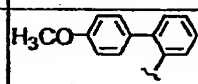
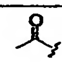
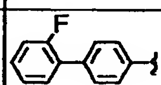
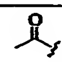
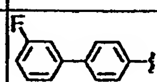
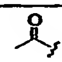
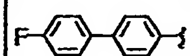
No.	R1	R2	R3	R4	R5	R6
XA1279	CH3–		H		H	H
XA1280	CH3–		H		H	H
XA1281	CH3–		H		H	H
XA1282	CH3–		H		H	H
XA1283	CH3–		H		H	H
XA1284	CH3–		H		H	H
XA1285	CH3–		H		H	H
XA1286	CH3–		H		H	H
XA1287	CH3–		H		H	H
XA1288	CH3–		H		H	H
XA1289	CH3–		H		H	H
XA1290	CH3–		H		H	H
XA1291	CH3–		H		H	H
XA1292	CH3–		H		H	H
XA1293	CH3–		H		H	H

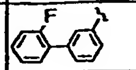
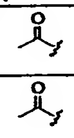
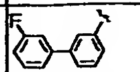
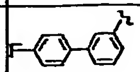
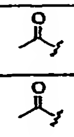
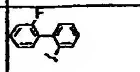
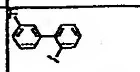
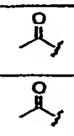
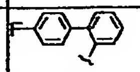
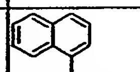
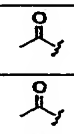
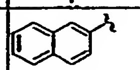
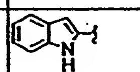
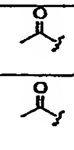
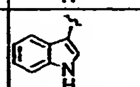
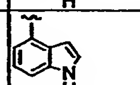
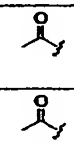
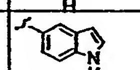
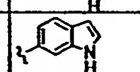
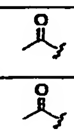
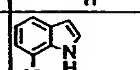
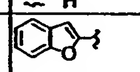
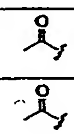
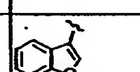
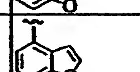
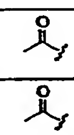
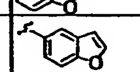
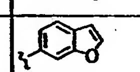
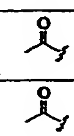
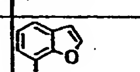
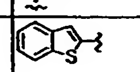
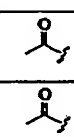
No.	R1	R2	R3	R4	R5	R6
XA1294	CH3–		H		H	H
XA1295	CH3–		H		H	H
XA1296	CH3–		H		H	H
XA1297	CH3–		H		H	H
XA1298	CH3–		H		H	H
XA1299	CH3–		H		H	H
XA1300	CH3–		H		H	H

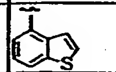
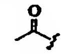
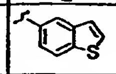
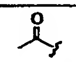
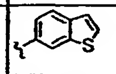
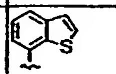
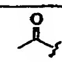
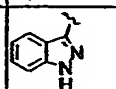
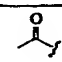
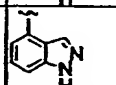
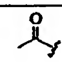
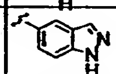
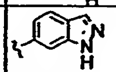
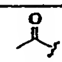
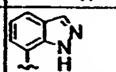
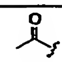
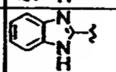
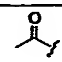
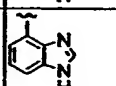
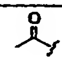
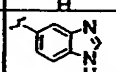
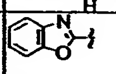
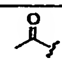
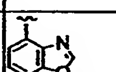
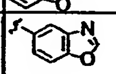
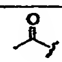
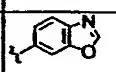
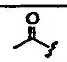
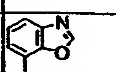
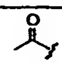
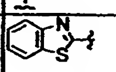
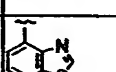
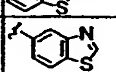
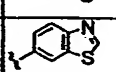
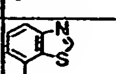
No.	R1	R2	R3	R4	R5	R6
XA1301	CH3-		H		H	H
XA1302	CH3-		H		H	H
XA1303	CH3-		H		H	H
XA1304	CH3-		H		H	H
XA1305	CH3-		H		H	H
XA1306	CH3-		H		H	H
XA1307	CH3-		H		H	H
XA1308	CH3-		H		H	H
XA1309	CH3-		H		H	H
XA1310	CH3-		H		H	H
XA1311	CH3-		H		H	H
XA1312	CH3-		H		H	H
XA1313	CH3-		H		H	H
XA1314	CH3-		H		H	H
XA1315	CH3-		H		H	H

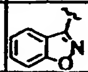
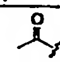
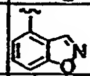
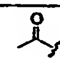
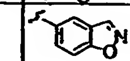
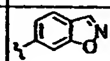
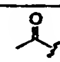
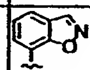
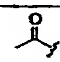
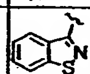
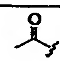
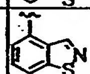
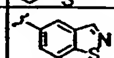
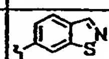
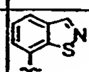
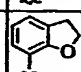
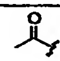
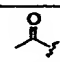
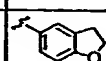
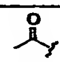
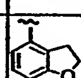
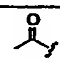
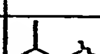
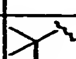
No.	R1	R2	R3	R4	R5	R6
XA1316	CH3-		H		H	H
XA1317	CH3-		H		H	H
XA1318	CH3-		H		H	H
XA1319	CH3-		H		H	H
XA1320	CH3-		H		H	H
XA1321	CH3-		H		H	H
XA1322	CH3-		H		H	H

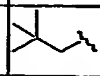
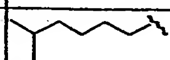
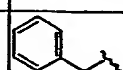
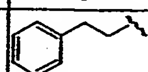
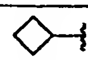
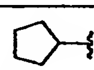
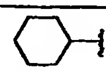
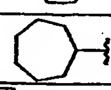
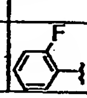
No.	R1	R2	R3	R4	R5	R6
XA1323	CH3-		H		H	H
XA1324	CH3-		H		H	H
XA1325	CH3-		H		H	H
XA1326	CH3-		H		H	H
XA1327	CH3-		H		H	H
XA1328	CH3-		H		H	H
XA1329	CH3-		H		H	H
XA1330	CH3-		H		H	H
XA1331	CH3-		H		H	H
XA1332	CH3-		H		H	H
XA1333	CH3-		H		H	H
XA1334	CH3-		H		H	H
XA1335	CH3-		H		H	H
XA1336	CH3-		H		H	H
XA1337	CH3-		H		H	H

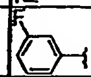
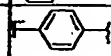
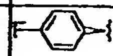
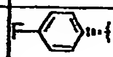
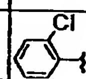
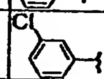
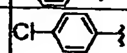
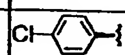
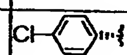
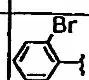
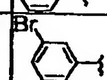
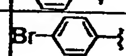
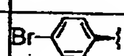
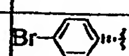
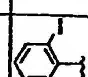
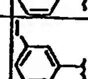
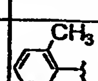
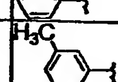
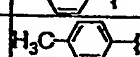
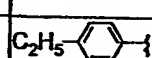
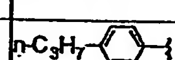
No.	R1	R2	R3	R4	R5	R6
XA1338	CH3-		H		H	H
XA1339	CH3-		H		H	H
XA1340	CH3-		H		H	H
XA1341	CH3-		H		H	H
XA1342	CH3-		H		H	H
XA1343	CH3-		H		H	H
XA1344	CH3-		H		H	H

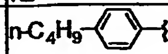
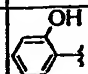
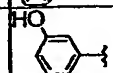
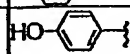
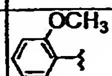
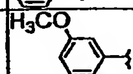
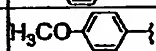
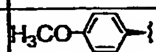
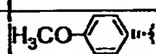
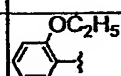
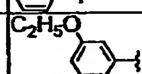
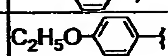
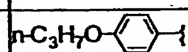
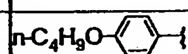
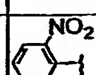
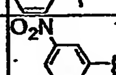
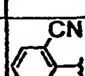
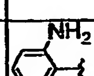
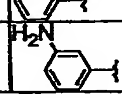
No.	R1	R2	R3	R4	R5	R6
XA1345	CH3–		H		H	H
XA1346	CH3–		H		H	H
XA1347	CH3–		H		H	H
XA1348	CH3–		H		H	H
XA1349	CH3–		H		H	H
XA1350	CH3–		H		H	H
XA1351	CH3–		H		H	H
XA1352	CH3–		H		H	H
XA1353	CH3–		H		H	H
XA1354	CH3–		H		H	H
XA1355	CH3–		H		H	H
XA1356	CH3–		H		H	H
XA1357	CH3–		H		H	H
XA1358	CH3–		H		H	H
XA1359	CH3–		H		H	H
XA1360	CH3–		H		H	H
XA1361	CH3–		H		H	H
XA1362	CH3–		H		H	H
XA1363	CH3–		H		H	H
XA1364	CH3–		H		H	H
XA1365	CH3–		H		H	H
XA1366	CH3–		H		H	H

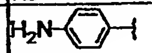
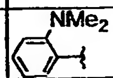
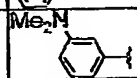
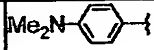
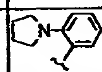
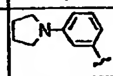
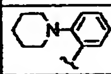
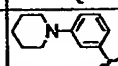
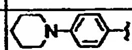
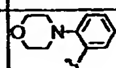
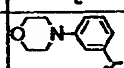
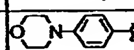
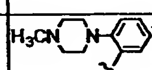
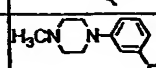
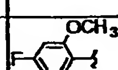
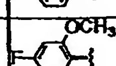
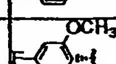
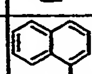
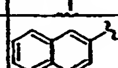
No.	R1	R2	R3	R4	R5	R6
XA1367	CH3–		H		H	H
XA1368	CH3–		H		H	H
XA1369	CH3–		H		H	H
XA1370	CH3–		H		H	H
XA1371	CH3–		H		H	H
XA1372	CH3–		H		H	H
XA1373	CH3–		H		H	H
XA1374	CH3–		H		H	H
XA1375	CH3–		H		H	H
XA1376	CH3–		H		H	H
XA1377	CH3–		H		H	H
XA1378	CH3–		H		H	H
XA1379	CH3–		H		H	H
XA1380	CH3–		H		H	H
XA1381	CH3–		H		H	H
XA1382	CH3–		H		H	H
XA1383	CH3–		H		H	H
XA1384	CH3–		H		H	H
XA1385	CH3–		H		H	H
XA1386	CH3–		H		H	H
XA1387	CH3–		H		H	H
XA1388	CH3–		H		H	H

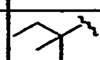
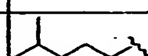
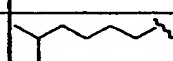
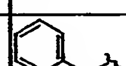
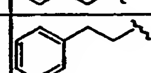
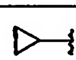
No.	R1	R2	R3	R4	R5	R6
XA1389	CH3-		H		H	H
XA1390	CH3-		H		H	H
XA1391	CH3-		H		H	H
XA1392	CH3-		H		H	H
XA1393	CH3-		H		H	H
XA1394	CH3-		H		H	H
XA1395	CH3-		H		H	H
XA1396	CH3-		H		H	H
XA1397	CH3-		H		H	H
XA1398	CH3-		H		H	H
XA1399	CH3-		H		H	H
XA1400	CH3-		H		H	H
XA1401	CH3-		H		H	H
XA1402	CH3-		H		H	H
XA1403	CH3-	CH3-	CH3-	H	H	H
XA1404	CH3-	CH3CH2-	CH3-	H	H	H
XA1405	CH3-		CH3-	H	H	H
XA1406	CH3-		CH3-	H	H	H
XA1407	CH3-		CH3-	H	H	H
XA1408	CH3-		CH3-	H	H	H
XA1409	CH3-		CH3-	H	H	H
XA1410	CH3-		CH3-	H	H	H

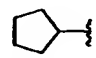
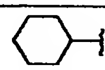
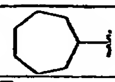
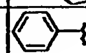
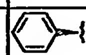
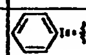
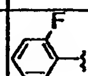
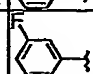
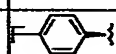
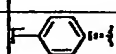
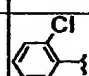
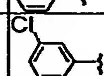
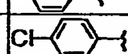
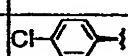
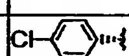
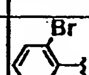
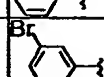
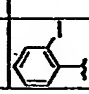
No.	R1	R2	R3	R4	R5	R6
XA1411	CH3–		CH3–	H	H	H
XA1412	CH3–		CH3–	H	H	H
XA1413	CH3–		CH3–	H	H	H
XA1414	CH3–		CH3–	H	H	H
XA1415	CH3–		CH3–	H	H	H
XA1416	CH3–		CH3–	H	H	H
XA1417	CH3–		CH3–	H	H	H
XA1418	CH3–		CH3–	H	H	H
XA1419	CH3–	n–C8H17–	CH3–	H	H	H
XA1420	CH3–		CH3–	H	H	H
XA1421	CH3–		CH3–	H	H	H
XA1422	CH3–		CH3–	H	H	H
XA1423	CH3–		CH3–	H	H	H
XA1424	CH3–		CH3–	H	H	H
XA1425	CH3–		CH3–	H	H	H
XA1426	CH3–		CH3–	H	H	H
XA1427	CH3–		CH3–	H	H	H
XA1428	CH3–		CH3–	H	H	H
XA1429	CH3–		CH3–	H	H	H
XA1430	CH3–		CH3–	H	H	H
XA1431	CH3–		CH3–	H	H	H
XA1432	CH3–		CH3–	H	H	H

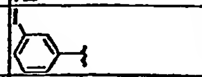
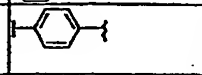
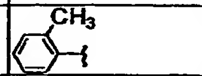
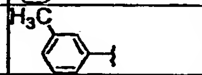
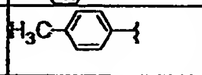
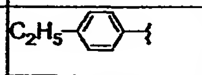
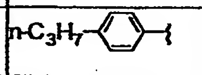
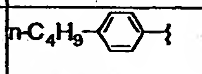
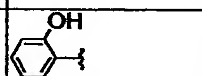
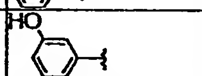
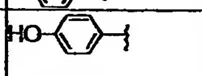
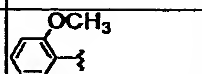
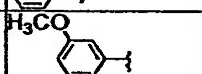
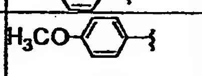
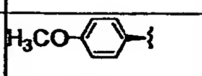
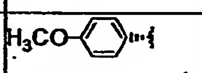
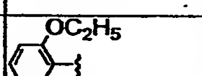
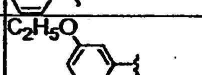
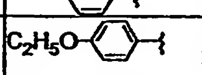
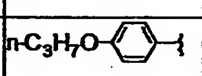
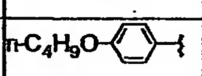
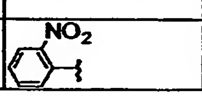
No.	R1	R2	R3	R4	R5	R6
XA1433	CH3–		CH3–	H	H	H
XA1434	CH3–		CH3–	H	H	H
XA1435	CH3–		CH3–	H	H	H
XA1436	CH3–		CH3–	H	H	H
XA1437	CH3–		CH3–	H	H	H
XA1438	CH3–		CH3–	H	H	H
XA1439	CH3–		CH3–	H	H	H
XA1440	CH3–		CH3–	H	H	H
XA1441	CH3–		CH3–	H	H	H
XA1442	CH3–		CH3–	H	H	H
XA1443	CH3–		CH3–	H	H	H
XA1444	CH3–		CH3–	H	H	H
XA1445	CH3–		CH3–	H	H	H
XA1446	CH3–		CH3–	H	H	H
XA1447	CH3–		CH3–	H	H	H
XA1448	CH3–		CH3–	H	H	H
XA1449	CH3–		CH3–	H	H	H
XA1450	CH3–		CH3–	H	H	H
XA1451	CH3–		CH3–	H	H	H
XA1452	CH3–		CH3–	H	H	H
XA1453	CH3–		CH3–	H	H	H
XA1454	CH3–		CH3–	H	H	H

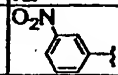
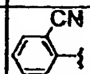
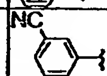
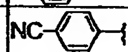
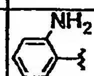
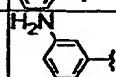
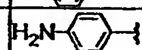
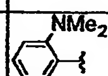
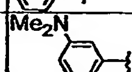
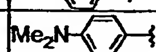
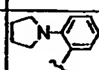
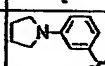
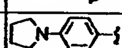
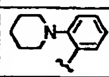
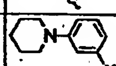
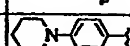
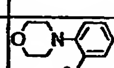
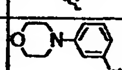
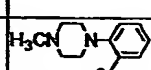
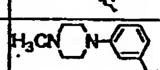
No.	R1	R2	R3	R4	R5	R6
XA1455	CH3–		CH3–	H	H	H
XA1456	CH3–		CH3–	H	H	H
XA1457	CH3–		CH3–	H	H	H
XA1458	CH3–		CH3–	H	H	H
XA1459	CH3–		CH3–	H	H	H
XA1460	CH3–		CH3–	H	H	H
XA1461	CH3–		CH3–	H	H	H
XA1462	CH3–		CH3–	H	H	H
XA1463	CH3–		CH3–	H	H	H
XA1464	CH3–		CH3–	H	H	H
XA1465	CH3–		CH3–	H	H	H
XA1466	CH3–		CH3–	H	H	H
XA1467	CH3–		CH3–	H	H	H
XA1468	CH3–		CH3–	H	H	H
XA1469	CH3–		CH3–	H	H	H
XA1470	CH3–		CH3–	H	H	H
XA1471	CH3–		CH3–	H	H	H
XA1472	CH3–		CH3–	H	H	H
XA1473	CH3–		CH3–	H	H	H
XA1474	CH3–		CH3–	H	H	H
XA1475	CH3–		CH3–	H	H	H
XA1476	CH3–		CH3–	H	H	H

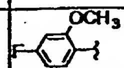
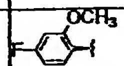
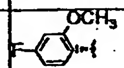
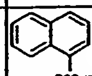
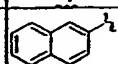
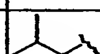
No.	R1	R2	R3	R4	R5	R6
XA1477	CH3–		CH3–	H	H	H
XA1478	CH3–		CH3–	H	H	H
XA1479	CH3–		CH3–	H	H	H
XA1480	CH3–		CH3–	H	H	H
XA1481	CH3–		CH3–	H	H	H
XA1482	CH3–		CH3–	H	H	H
XA1483	CH3–		CH3–	H	H	H
XA1484	CH3–		CH3–	H	H	H
XA1485	CH3–		CH3–	H	H	H
XA1486	CH3–		CH3–	H	H	H
XA1487	CH3–		CH3–	H	H	H
XA1488	CH3–		CH3–	H	H	H
XA1489	CH3–		CH3–	H	H	H
XA1490	CH3–		CH3–	H	H	H
XA1491	CH3–		CH3–	H	H	H
XA1492	CH3–		CH3–	H	H	H
XA1493	CH3–		CH3–	H	H	H
XA1494	CH3–		CH3–	H	H	H
XA1495	CH3–		CH3–	H	H	H
XA1496	CH3–		CH3–	H	H	H
XA1497	CH3–		CH3–	H	H	H
XA1498	CH3–	CH3–	H	H	CH3–	H

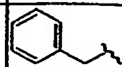
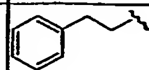
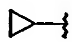
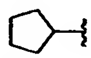
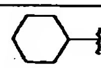
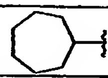
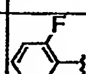
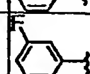
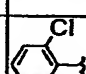
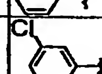
No.	R1	R2	R3	R4	R5	R6
XA1499	CH3-	CH3CH2-	H	H	CH3-	H
XA1500	CH3-		H	H	CH3-	H
XA1501	CH3-		H	H	CH3-	H
XA1502	CH3-		H	H	CH3-	H
XA1503	CH3-		H	H	CH3-	H
XA1504	CH3-		H	H	CH3-	H
XA1505	CH3-		H	H	CH3-	H
XA1506	CH3-		H	H	CH3-	H
XA1507	CH3-		H	H	CH3-	H
XA1508	CH3-		H	H	CH3-	H
XA1509	CH3-		H	H	CH3-	H
XA1510	CH3-		H	H	CH3-	H
XA1511	CH3-		H	H	CH3-	H
XA1512	CH3-		H	H	CH3-	H
XA1513	CH3-		H	H	CH3-	H
XA1514	CH3-	n-C8H17-	H	H	CH3-	H
XA1515	CH3-		H	H	CH3-	H
XA1516	CH3-		H	H	CH3-	H
XA1517	CH3-		H	H	CH3-	H
XA1518	CH3-		H	H	CH3-	H
XA1519	CH3-		H	H	CH3-	H
XA1520	CH3-		H	H	CH3-	H

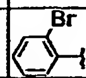
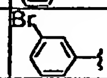
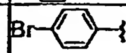
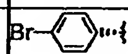
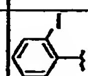
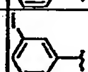
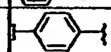
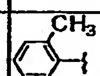
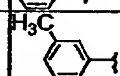
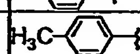
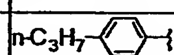
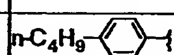
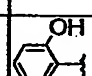
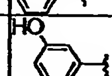
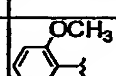
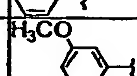
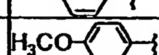
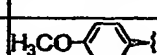
No.	R1	R2	R3	R4	R5	R6
XA1521	CH3–		H	H	CH3–	H
XA1522	CH3–		H	H	CH3–	H
XA1523	CH3–		H	H	CH3–	H
XA1524	CH3–		H	H	CH3–	H
XA1525	CH3–		H	H	CH3–	H
XA1526	CH3–		H	H	CH3–	H
XA1527	CH3–		H	H	CH3–	H
XA1528	CH3–		H	H	CH3–	H
XA1529	CH3–		H	H	CH3–	H
XA1530	CH3–		H	H	CH3–	H
XA1531	CH3–		H	H	CH3–	H
XA1532	CH3–		H	H	CH3–	H
XA1533	CH3–		H	H	CH3–	H
XA1534	CH3–		H	H	CH3–	H
XA1535	CH3–		H	H	CH3–	H
XA1536	CH3–		H	H	CH3–	H
XA1537	CH3–		H	H	CH3–	H
XA1538	CH3–		H	H	CH3–	H
XA1539	CH3–		H	H	CH3–	H
XA1540	CH3–		H	H	CH3–	H
XA1541	CH3–		H	H	CH3–	H
XA1542	CH3–		H	H	CH3–	H

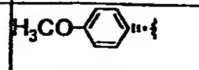
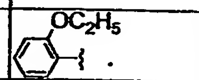
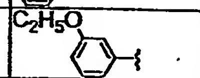
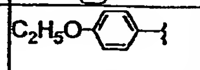
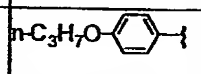
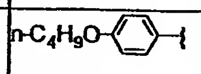
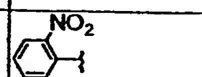
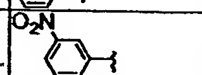
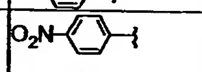
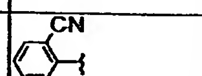
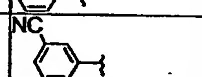
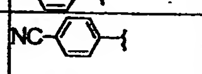
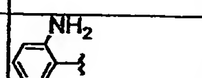
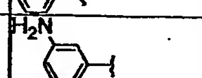
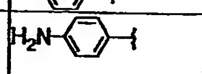
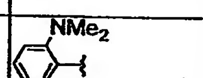
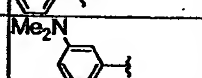
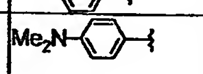
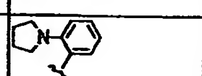
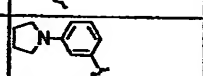
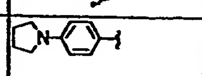
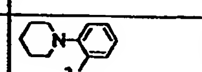
No.	R1	R2	R3	R4	R5	R6
XA1543	CH3–		H	H	CH3–	H
XA1544	CH3–		H	H	CH3–	H
XA1545	CH3–		H	H	CH3–	H
XA1546	CH3–		H	H	CH3–	H
XA1547	CH3–		H	H	CH3–	H
XA1548	CH3–		H	H	CH3–	H
XA1549	CH3–		H	H	CH3–	H
XA1550	CH3–		H	H	CH3–	H
XA1551	CH3–		H	H	CH3–	H
XA1552	CH3–		H	H	CH3–	H
XA1553	CH3–		H	H	CH3–	H
XA1554	CH3–		H	H	CH3–	H
XA1555	CH3–		H	H	CH3–	H
XA1556	CH3–		H	H	CH3–	H
XA1557	CH3–		H	H	CH3–	H
XA1558	CH3–		H	H	CH3–	H
XA1559	CH3–		H	H	CH3–	H
XA1560	CH3–		H	H	CH3–	H
XA1561	CH3–		H	H	CH3–	H
XA1562	CH3–		H	H	CH3–	H
XA1563	CH3–		H	H	CH3–	H
XA1564	CH3–		H	H	CH3–	H

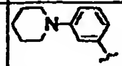
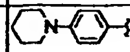
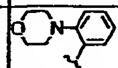
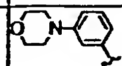
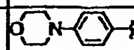
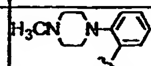
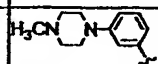
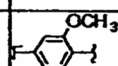
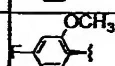
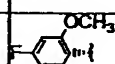
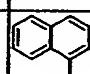
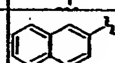
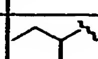
No.	R1	R2	R3	R4	R5	R6
XA1565	CH3–		H	H	CH3–	H
XA1566	CH3–		H	H	CH3–	H
XA1567	CH3–		H	H	CH3–	H
XA1568	CH3–		H	H	CH3–	H
XA1569	CH3–		H	H	CH3–	H
XA1570	CH3–		H	H	CH3–	H
XA1571	CH3–		H	H	CH3–	H
XA1572	CH3–		H	H	CH3–	H
XA1573	CH3–		H	H	CH3–	H
XA1574	CH3–		H	H	CH3–	H
XA1575	CH3–		H	H	CH3–	H
XA1576	CH3–		H	H	CH3–	H
XA1577	CH3–		H	H	CH3–	H
XA1578	CH3–		H	H	CH3–	H
XA1579	CH3–		H	H	CH3–	H
XA1580	CH3–		H	H	CH3–	H
XA1581	CH3–		H	H	CH3–	H
XA1582	CH3–		H	H	CH3–	H
XA1583	CH3–		H	H	CH3–	H
XA1584	CH3–		H	H	CH3–	H
XA1585	CH3–		H	H	CH3–	H
XA1586	CH3–		H	H	CH3–	H

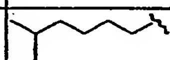
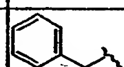
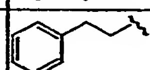
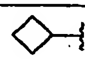
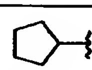
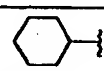
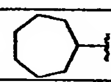
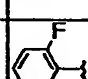
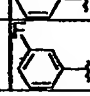
No.	R1	R2	R3	R4	R5	R6
XA1587	CH3–		H	H	CH3–	H
XA1588	CH3–		H	H	CH3–	H
XA1589	CH3–		H	H	CH3–	H
XA1590	CH3–		H	H	CH3–	H
XA1591	CH3–		H	H	CH3–	H
XA1592	CH3–		H	H	CH3–	H
XA1593	CH3–	CH3–	H	H	CH3–	CH3–
XA1594	CH3–	CH3CH2–	H	H	CH3–	CH3–
XA1595	CH3–		H	H	CH3–	CH3–
XA1596	CH3–		H	H	CH3–	CH3–
XA1597	CH3–		H	H	CH3–	CH3–
XA1598	CH3–		H	H	CH3–	CH3–
XA1599	CH3–		H	H	CH3–	CH3–
XA1600	CH3–		H	H	CH3–	CH3–
XA1601	CH3–		H	H	CH3–	CH3–
XA1602	CH3–		H	H	CH3–	CH3–
XA1603	CH3–		H	H	CH3–	CH3–
XA1604	CH3–		H	H	CH3–	CH3–
XA1605	CH3–		H	H	CH3–	CH3–
XA1606	CH3–		H	H	CH3–	CH3–
XA1607	CH3–		H	H	CH3–	CH3–
XA1608	CH3–		H	H	CH3–	CH3–

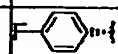
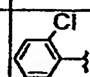
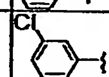
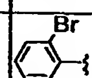
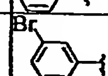
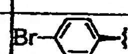
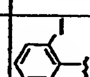
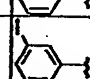
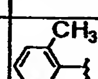
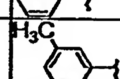
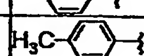
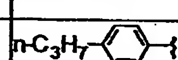
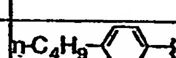
No.	R1	R2	R3	R4	R5	R6
XA1609	CH3-	n-C8H17-	H	H	CH3-	CH3-
XA1610	CH3-		H	H	CH3-	CH3-
XA1611	CH3-		H	H	CH3-	CH3-
XA1612	CH3-		H	H	CH3-	CH3-
XA1613	CH3-		H	H	CH3-	CH3-
XA1614	CH3-		H	H	CH3-	CH3-
XA1615	CH3-		H	H	CH3-	CH3-
XA1616	CH3-		H	H	CH3-	CH3-
XA1617	CH3-		H	H	CH3-	CH3-
XA1618	CH3-		H	H	CH3-	CH3-
XA1619	CH3-		H	H	CH3-	CH3-
XA1620	CH3-		H	H	CH3-	CH3-
XA1621	CH3-		H	H	CH3-	CH3-
XA1622	CH3-		H	H	CH3-	CH3-
XA1623	CH3-		H	H	CH3-	CH3-
XA1624	CH3-		H	H	CH3-	CH3-
XA1625	CH3-		H	H	CH3-	CH3-
XA1626	CH3-		H	H	CH3-	CH3-
XA1627	CH3-		H	H	CH3-	CH3-
XA1628	CH3-		H	H	CH3-	CH3-
XA1629	CH3-		H	H	CH3-	CH3-
XA1630	CH3-		H	H	CH3-	CH3-

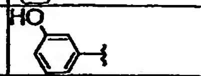
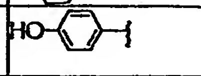
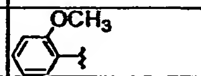
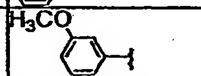
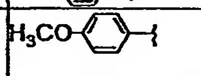
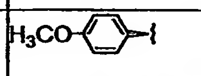
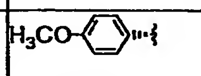
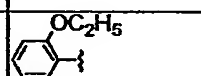
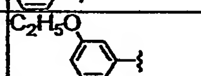
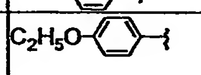
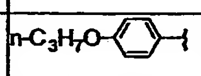
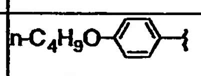
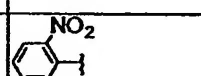
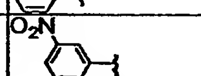
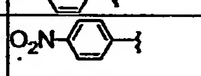
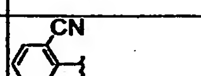
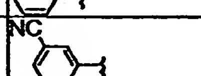
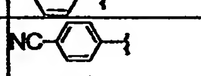
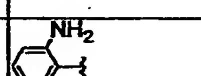
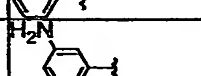
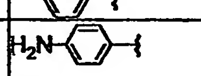
No.	R1	R2	R3	R4	R5	R6
XA1631	CH3-		H	H	CH3-	CH3-
XA1632	CH3-		H	H	CH3-	CH3-
XA1633	CH3-		H	H	CH3-	CH3-
XA1634	CH3-		H	H	CH3-	CH3-
XA1635	CH3-		H	H	CH3-	CH3-
XA1636	CH3-		H	H	CH3-	CH3-
XA1637	CH3-		H	H	CH3-	CH3-
XA1638	CH3-		H	H	CH3-	CH3-
XA1639	CH3-		H	H	CH3-	CH3-
XA1640	CH3-		H	H	CH3-	CH3-
XA1641	CH3-		H	H	CH3-	CH3-
XA1642	CH3-		H	H	CH3-	CH3-
XA1643	CH3-		H	H	CH3-	CH3-
XA1644	CH3-		H	H	CH3-	CH3-
XA1645	CH3-		H	H	CH3-	CH3-
XA1646	CH3-		H	H	CH3-	CH3-
XA1647	CH3-		H	H	CH3-	CH3-
XA1648	CH3-		H	H	CH3-	CH3-
XA1649	CH3-		H	H	CH3-	CH3-
XA1650	CH3-		H	H	CH3-	CH3-
XA1651	CH3-		H	H	CH3-	CH3-
XA1652	CH3-		H	H	CH3-	CH3-

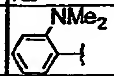
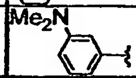
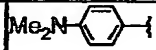
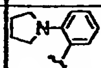
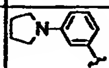
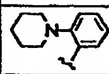
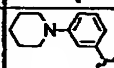
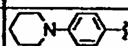
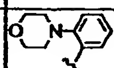
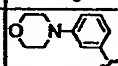
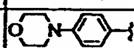
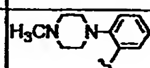
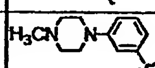
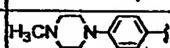
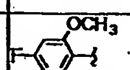
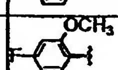
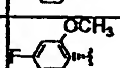
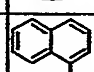
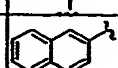
No.	R1	R2	R3	R4	R5	R6
XA1653	CH3-		H	H	CH3-	CH3-
XA1654	CH3-		H	H	CH3-	CH3-
XA1655	CH3-		H	H	CH3-	CH3-
XA1656	CH3-		H	H	CH3-	CH3-
XA1657	CH3-		H	H	CH3-	CH3-
XA1658	CH3-		H	H	CH3-	CH3-
XA1659	CH3-		H	H	CH3-	CH3-
XA1660	CH3-		H	H	CH3-	CH3-
XA1661	CH3-		H	H	CH3-	CH3-
XA1662	CH3-		H	H	CH3-	CH3-
XA1663	CH3-		H	H	CH3-	CH3-
XA1664	CH3-		H	H	CH3-	CH3-
XA1665	CH3-		H	H	CH3-	CH3-
XA1666	CH3-		H	H	CH3-	CH3-
XA1667	CH3-		H	H	CH3-	CH3-
XA1668	CH3-		H	H	CH3-	CH3-
XA1669	CH3-		H	H	CH3-	CH3-
XA1670	CH3-		H	H	CH3-	CH3-
XA1671	CH3-		H	H	CH3-	CH3-
XA1672	CH3-		H	H	CH3-	CH3-
XA1673	CH3-		H	H	CH3-	CH3-
XA1674	CH3-		H	H	CH3-	CH3-

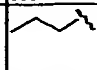
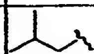
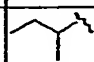
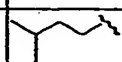
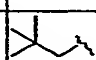
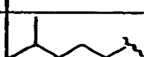
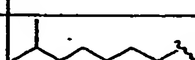
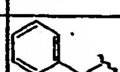
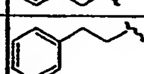
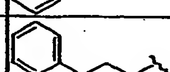
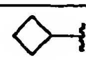
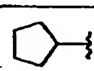
No.	R1	R2	R3	R4	R5	R6
XA1675	CH3-		H	H	CH3-	CH3-
XA1676	CH3-		H	H	CH3-	CH3-
XA1677	CH3-		H	H	CH3-	CH3-
XA1678	CH3-		H	H	CH3-	CH3-
XA1679	CH3-		H	H	CH3-	CH3-
XA1680	CH3-		H	H	CH3-	CH3-
XA1681	CH3-		H	H	CH3-	CH3-
XA1682	CH3-		H	H	CH3-	CH3-
XA1683	CH3-		H	H	CH3-	CH3-
XA1684	CH3-		H	H	CH3-	CH3-
XA1685	CH3-		H	H	CH3-	CH3-
XA1686	CH3-		H	H	CH3-	CH3-
XA1687	CH3-		H	H	CH3-	CH3-
XA1688	CH3-	CH3-	H	CH3-	CH3-	CH3-
XA1689	CH3-	CH3CH2-	H	CH3-	CH3-	CH3-
XA1690	CH3-		H	CH3-	CH3-	CH3-
XA1691	CH3-		H	CH3-	CH3-	CH3-
XA1692	CH3-		H	CH3-	CH3-	CH3-
XA1693	CH3-		H	CH3-	CH3-	CH3-
XA1694	CH3-		H	CH3-	CH3-	CH3-
XA1695	CH3-		H	CH3-	CH3-	CH3-
XA1696	CH3-		H	CH3-	CH3-	CH3-

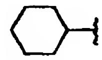
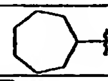
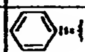
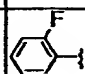
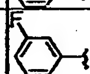
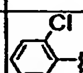
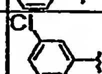
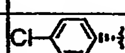
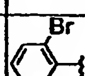
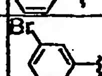
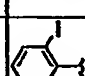
No.	R1	R2	R3	R4	R5	R6
XA1697	CH3–		H	CH3–	CH3–	CH3–
XA1698	CH3–		H	CH3–	CH3–	CH3–
XA1699	CH3–		H	CH3–	CH3–	CH3–
XA1700	CH3–		H	CH3–	CH3–	CH3–
XA1701	CH3–		H	CH3–	CH3–	CH3–
XA1702	CH3–		H	CH3–	CH3–	CH3–
XA1703	CH3–		H	CH3–	CH3–	CH3–
XA1704	CH3–	n-C8H17–	H	CH3–	CH3–	CH3–
XA1705	CH3–		H	CH3–	CH3–	CH3–
XA1706	CH3–		H	CH3–	CH3–	CH3–
XA1707	CH3–		H	CH3–	CH3–	CH3–
XA1708	CH3–		H	CH3–	CH3–	CH3–
XA1709	CH3–		H	CH3–	CH3–	CH3–
XA1710	CH3–		H	CH3–	CH3–	CH3–
XA1711	CH3–		H	CH3–	CH3–	CH3–
XA1712	CH3–		H	CH3–	CH3–	CH3–
XA1713	CH3–		H	CH3–	CH3–	CH3–
XA1714	CH3–		H	CH3–	CH3–	CH3–
XA1715	CH3–		H	CH3–	CH3–	CH3–
XA1716	CH3–		H	CH3–	CH3–	CH3–
XA1717	CH3–		H	CH3–	CH3–	CH3–
XA1718	CH3–		H	CH3–	CH3–	CH3–

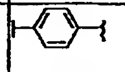
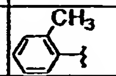
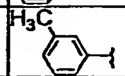
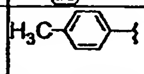
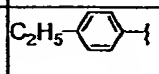
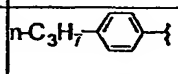
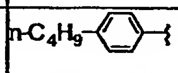
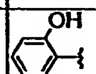
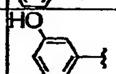
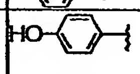
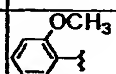
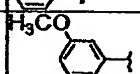
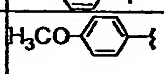
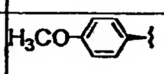
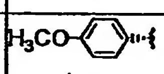
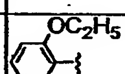
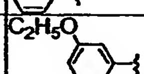
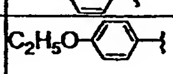
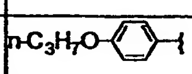
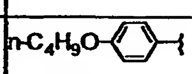
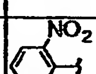
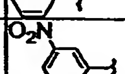
No.	R1	R2	R3	R4	R5	R6
XA1719	CH3–		H	CH3–	CH3–	CH3–
XA1720	CH3–		H	CH3–	CH3–	CH3–
XA1721	CH3–		H	CH3–	CH3–	CH3–
XA1722	CH3–		H	CH3–	CH3–	CH3–
XA1723	CH3–		H	CH3–	CH3–	CH3–
XA1724	CH3–		H	CH3–	CH3–	CH3–
XA1725	CH3–		H	CH3–	CH3–	CH3–
XA1726	CH3–		H	CH3–	CH3–	CH3–
XA1727	CH3–		H	CH3–	CH3–	CH3–
XA1728	CH3–		H	CH3–	CH3–	CH3–
XA1729	CH3–		H	CH3–	CH3–	CH3–
XA1730	CH3–		H	CH3–	CH3–	CH3–
XA1731	CH3–		H	CH3–	CH3–	CH3–
XA1732	CH3–		H	CH3–	CH3–	CH3–
XA1733	CH3–		H	CH3–	CH3–	CH3–
XA1734	CH3–		H	CH3–	CH3–	CH3–
XA1735	CH3–		H	CH3–	CH3–	CH3–
XA1736	CH3–		H	CH3–	CH3–	CH3–
XA1737	CH3–		H	CH3–	CH3–	CH3–
XA1738	CH3–		H	CH3–	CH3–	CH3–
XA1739	CH3–		H	CH3–	CH3–	CH3–
XA1740	CH3–		H	CH3–	CH3–	CH3–

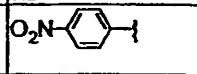
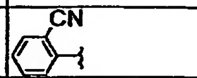
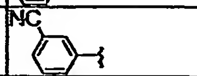
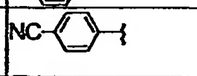
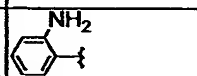
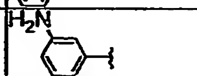
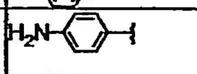
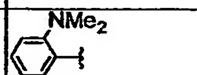
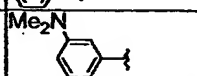
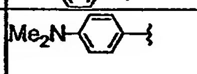
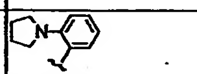
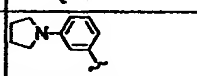
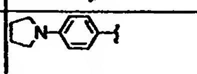
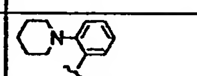
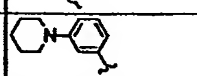
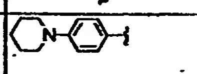
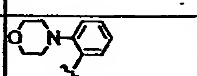
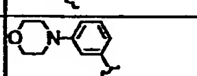
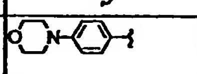
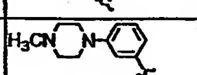
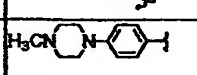
No.	R1	R2	R3	R4	R5	R6
XA1741	CH3-		H	CH3-	CH3-	CH3-
XA1742	CH3-		H	CH3-	CH3-	CH3-
XA1743	CH3-		H	CH3-	CH3-	CH3-
XA1744	CH3-		H	CH3-	CH3-	CH3-
XA1745	CH3-		H	CH3-	CH3-	CH3-
XA1746	CH3-		H	CH3-	CH3-	CH3-
XA1747	CH3-		H	CH3-	CH3-	CH3-
XA1748	CH3-		H	CH3-	CH3-	CH3-
XA1749	CH3-		H	CH3-	CH3-	CH3-
XA1750	CH3-		H	CH3-	CH3-	CH3-
XA1751	CH3-		H	CH3-	CH3-	CH3-
XA1752	CH3-		H	CH3-	CH3-	CH3-
XA1753	CH3-		H	CH3-	CH3-	CH3-
XA1754	CH3-		H	CH3-	CH3-	CH3-
XA1755	CH3-		H	CH3-	CH3-	CH3-
XA1756	CH3-		H	CH3-	CH3-	CH3-
XA1757	CH3-		H	CH3-	CH3-	CH3-
XA1758	CH3-		H	CH3-	CH3-	CH3-
XA1759	CH3-		H	CH3-	CH3-	CH3-
XA1760	CH3-		H	CH3-	CH3-	CH3-
XA1761	CH3-		H	CH3-	CH3-	CH3-
XA1762	CH3-		H	CH3-	CH3-	CH3-

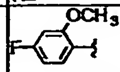
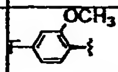
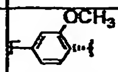
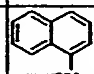
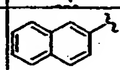
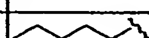
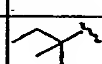
No.	R1	R2	R3	R4	R5	R6
XA1763	CH3–		H	CH3–	CH3–	CH3–
XA1764	CH3–		H	CH3–	CH3–	CH3–
XA1765	CH3–		H	CH3–	CH3–	CH3–
XA1766	CH3–		H	CH3–	CH3–	CH3–
XA1767	CH3–		H	CH3–	CH3–	CH3–
XA1768	CH3–		H	CH3–	CH3–	CH3–
XA1769	CH3–		H	CH3–	CH3–	CH3–
XA1770	CH3–		H	CH3–	CH3–	CH3–
XA1771	CH3–		H	CH3–	CH3–	CH3–
XA1772	CH3–		H	CH3–	CH3–	CH3–
XA1773	CH3–		H	CH3–	CH3–	CH3–
XA1774	CH3–		H	CH3–	CH3–	CH3–
XA1775	CH3–		H	CH3–	CH3–	CH3–
XA1776	CH3–		H	CH3–	CH3–	CH3–
XA1777	CH3–		H	CH3–	CH3–	CH3–
XA1778	CH3–		H	CH3–	CH3–	CH3–
XA1779	CH3–		H	CH3–	CH3–	CH3–
XA1780	CH3–		H	CH3–	CH3–	CH3–
XA1781	CH3–		H	CH3–	CH3–	CH3–
XA1782	CH3–		H	CH3–	CH3–	CH3–
XA1783	CH3CH2–	CH3–	H	H	H	H
XA1784	CH3CH2–	CH3CH2–	H	H	H	H

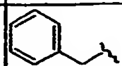
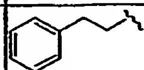
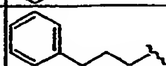
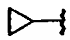
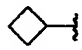
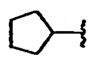
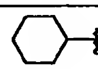
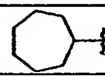
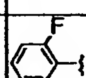
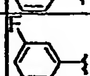
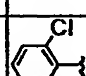
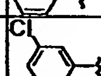
No.	R1	R2	R3	R4	R5	R6
XA1785	CH3CH2-		H	H	H	H
XA1786	CH3CH2-		H	H	H	H
XA1787	CH3CH2-		H	H	H	H
XA1788	CH3CH2-		H	H	H	H
XA1789	CH3CH2-		H	H	H	H
XA1790	CH3CH2-		H	H	H	H
XA1791	CH3CH2-		H	H	H	H
XA1792	CH3CH2-		H	H	H	H
XA1793	CH3CH2-		H	H	H	H
XA1794	CH3CH2-		H	H	H	H
XA1795	CH3CH2-		H	H	H	H
XA1796	CH3CH2-		H	H	H	H
XA1797	CH3CH2-		H	H	H	H
XA1798	CH3CH2-		H	H	H	H
XA1799	CH3CH2-	n-C8H17-	H	H	H	H
XA1800	CH3CH2-		H	H	H	H
XA1801	CH3CH2-		H	H	H	H
XA1802	CH3CH2-		H	H	H	H
XA1803	CH3CH2-		H	H	H	H
XA1804	CH3CH2-		H	H	H	H
XA1805	CH3CH2-		H	H	H	H
XA1806	CH3CH2-		H	H	H	H

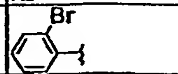
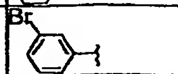
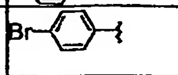
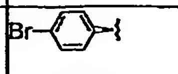
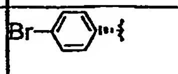
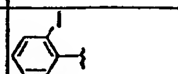
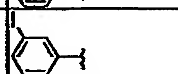
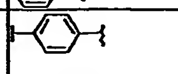
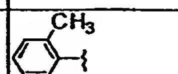
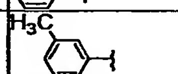
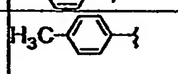
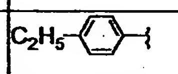
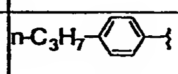
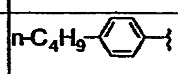
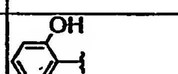
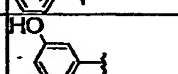
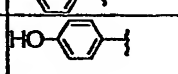
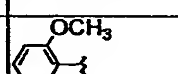
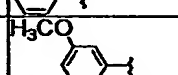
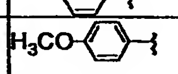
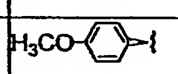
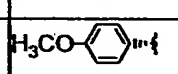
No.	R1	R2	R3	R4	R5	R6
XA1807	CH3CH2-		H	H	H	H
XA1808	CH3CH2-		H	H	H	H
XA1809	CH3CH2-		H	H	H	H
XA1810	CH3CH2-		H	H	H	H
XA1811	CH3CH2-		H	H	H	H
XA1812	CH3CH2-		H	H	H	H
XA1813	CH3CH2-		H	H	H	H
XA1814	CH3CH2-		H	H	H	H
XA1815	CH3CH2-		H	H	H	H
XA1816	CH3CH2-		H	H	H	H
XA1817	CH3CH2-		H	H	H	H
XA1818	CH3CH2-		H	H	H	H
XA1819	CH3CH2-		H	H	H	H
XA1820	CH3CH2-		H	H	H	H
XA1821	CH3CH2-		H	H	H	H
XA1822	CH3CH2-		H	H	H	H
XA1823	CH3CH2-		H	H	H	H
XA1824	CH3CH2-		H	H	H	H
XA1825	CH3CH2-		H	H	H	H
XA1826	CH3CH2-		H	H	H	H
XA1827	CH3CH2-		H	H	H	H
XA1828	CH3CH2-		H	H	H	H

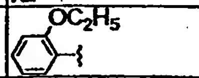
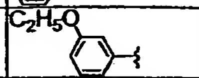
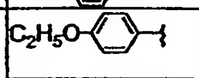
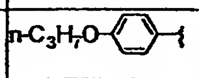
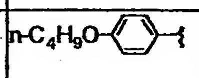
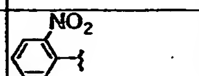
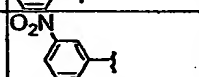
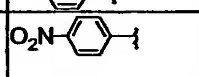
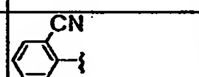
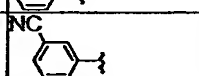
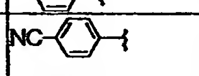
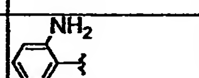
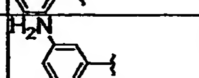
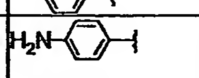
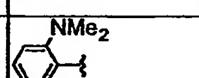
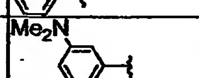
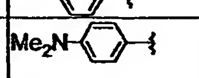
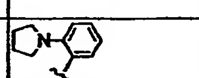
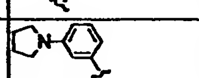
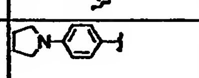
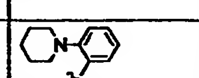
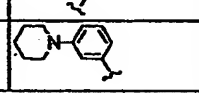
No.	R1	R2	R3	R4	R5	R6
XA1829	CH3CH2-		H	H	H	H
XA1830	CH3CH2-		H	H	H	H
XA1831	CH3CH2-		H	H	H	H
XA1832	CH3CH2-		H	H	H	H
XA1833	CH3CH2-		H	H	H	H
XA1834	CH3CH2-		H	H	H	H
XA1835	CH3CH2-		H	H	H	H
XA1836	CH3CH2-		H	H	H	H
XA1837	CH3CH2-		H	H	H	H
XA1838	CH3CH2-		H	H	H	H
XA1839	CH3CH2-		H	H	H	H
XA1840	CH3CH2-		H	H	H	H
XA1841	CH3CH2-		H	H	H	H
XA1842	CH3CH2-		H	H	H	H
XA1843	CH3CH2-		H	H	H	H
XA1844	CH3CH2-		H	H	H	H
XA1845	CH3CH2-		H	H	H	H
XA1846	CH3CH2-		H	H	H	H
XA1847	CH3CH2-		H	H	H	H
XA1848	CH3CH2-		H	H	H	H
XA1849	CH3CH2-		H	H	H	H
XA1850	CH3CH2-		H	H	H	H

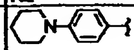
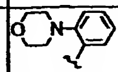
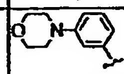
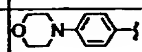
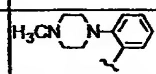
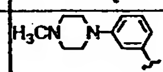
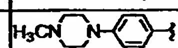
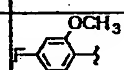
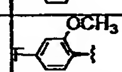
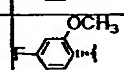
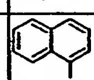
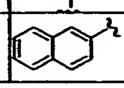
No.	R1	R2	R3	R4	R5	R6
XA1851	CH3CH2-		H	H	H	H
XA1852	CH3CH2-		H	H	H	H
XA1853	CH3CH2-		H	H	H	H
XA1854	CH3CH2-		H	H	H	H
XA1855	CH3CH2-		H	H	H	H
XA1856	CH3CH2-		H	H	H	H
XA1857	CH3CH2-		H	H	H	H
XA1858	CH3CH2-		H	H	H	H
XA1859	CH3CH2-		H	H	H	H
XA1860	CH3CH2-		H	H	H	H
XA1861	CH3CH2-		H	H	H	H
XA1862	CH3CH2-		H	H	H	H
XA1863	CH3CH2-		H	H	H	H
XA1864	CH3CH2-		H	H	H	H
XA1865	CH3CH2-		H	H	H	H
XA1866	CH3CH2-		H	H	H	H
XA1867	CH3CH2-		H	H	H	H
XA1868	CH3CH2-		H	H	H	H
XA1869	CH3CH2-		H	H	H	H
XA1870	CH3CH2-		H	H	H	H
XA1871	CH3CH2-		H	H	H	H
XA1872	CH3CH2-		H	H	H	H

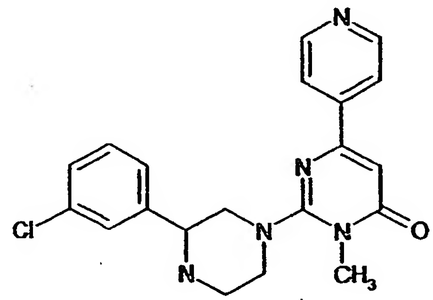
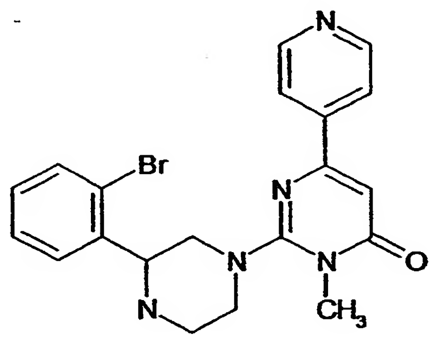
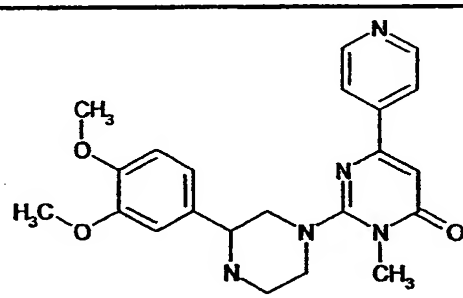
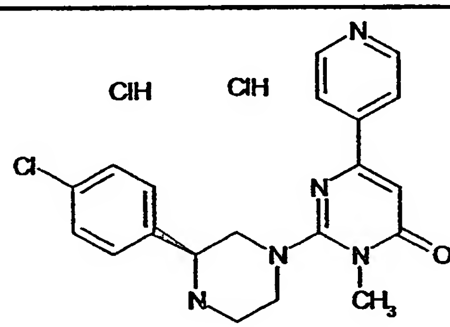
No.	R1	R2	R3	R4	R5	R6
XA1873	CH3CH2-		H	H	H	H
XA1874	CH3CH2-		H	H	H	H
XA1875	CH3CH2-		H	H	H	H
XA1876	CH3CH2-		H	H	H	H
XA1877	CH3CH2-		H	H	H	H
XA1878	CH3CH2-	CH3-	H	CH3-	H	H
XA1879	CH3CH2-	CH3CH2-	H	CH3-	H	H
XA1880	CH3CH2-		H	CH3-	H	H
XA1881	CH3CH2-		H	CH3-	H	H
XA1882	CH3CH2-		H	CH3-	H	H
XA1883	CH3CH2-		H	CH3-	H	H
XA1884	CH3CH2-		H	CH3-	H	H
XA1885	CH3CH2-		H	CH3-	H	H
XA1886	CH3CH2-		H	CH3-	H	H
XA1887	CH3CH2-		H	CH3-	H	H
XA1888	CH3CH2-		H	CH3-	H	H
XA1889	CH3CH2-		H	CH3-	H	H
XA1890	CH3CH2-		H	CH3-	H	H
XA1891	CH3CH2-		H	CH3-	H	H
XA1892	CH3CH2-		H	CH3-	H	H
XA1893	CH3CH2-		H	CH3-	H	H
XA1894	CH3CH2-	n-C8H17-	H	CH3-	H	H

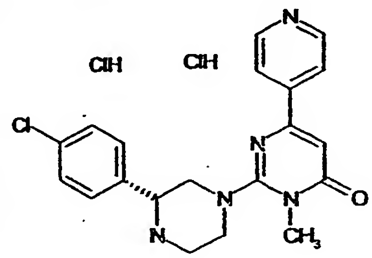
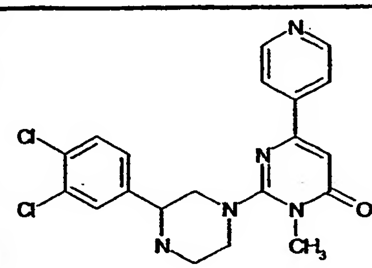
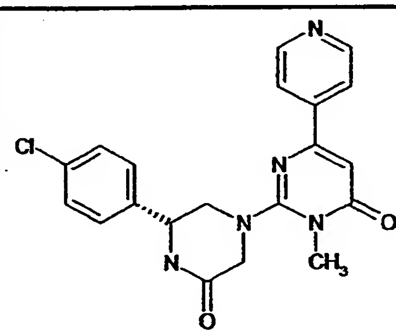
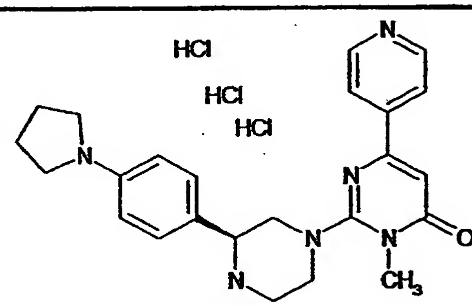
No.	R1	R2	R3	R4	R5	R6
XA1895	CH3CH2-		H	CH3-	H	H
XA1896	CH3CH2-		H	CH3-	H	H
XA1897	CH3CH2-		H	CH3-	H	H
XA1898	CH3CH2-		H	CH3-	H	H
XA1899	CH3CH2-		H	CH3-	H	H
XA1900	CH3CH2-		H	CH3-	H	H
XA1901	CH3CH2-		H	CH3-	H	H
XA1902	CH3CH2-		H	CH3-	H	H
XA1903	CH3CH2-		H	CH3-	H	H
XA1904	CH3CH2-		H	CH3-	H	H
XA1905	CH3CH2-		H	CH3-	H	H
XA1906	CH3CH2-		H	CH3-	H	H
XA1907	CH3CH2-		H	CH3-	H	H
XA1908	CH3CH2-		H	CH3-	H	H
XA1909	CH3CH2-		H	CH3-	H	H
XA1910	CH3CH2-		H	CH3-	H	H
XA1911	CH3CH2-		H	CH3-	H	H
XA1912	CH3CH2-		H	CH3-	H	H
XA1913	CH3CH2-		H	CH3-	H	H
XA1914	CH3CH2-		H	CH3-	H	H
XA1915	CH3CH2-		H	CH3-	H	H
XA1916	CH3CH2-		H	CH3-	H	H

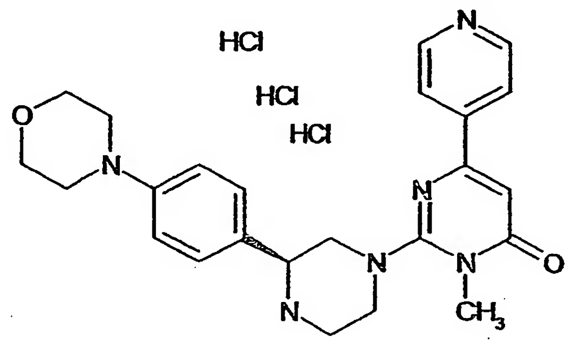
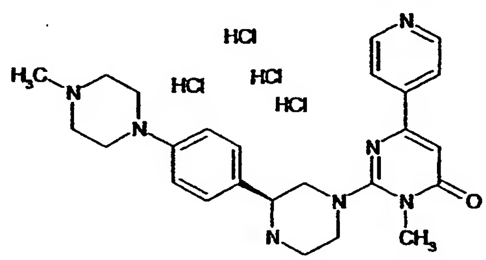
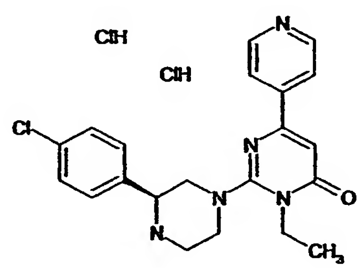
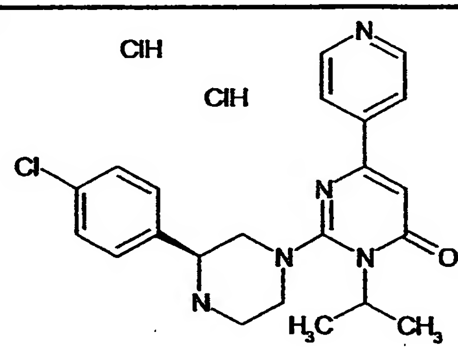
No.	R1	R2	R3	R4	R5	R6
XA1917	CH3CH2–		H	CH3–	H	H
XA1918	CH3CH2–		H	CH3–	H	H
XA1919	CH3CH2–		H	CH3–	H	H
XA1920	CH3CH2–		H	CH3–	H	H
XA1921	CH3CH2–		H	CH3–	H	H
XA1922	CH3CH2–		H	CH3–	H	H
XA1923	CH3CH2–		H	CH3–	H	H
XA1924	CH3CH2–		H	CH3–	H	H
XA1925	CH3CH2–		H	CH3–	H	H
XA1926	CH3CH2–		H	CH3–	H	H
XA1927	CH3CH2–		H	CH3–	H	H
XA1928	CH3CH2–		H	CH3–	H	H
XA1929	CH3CH2–		H	CH3–	H	H
XA1930	CH3CH2–		H	CH3–	H	H
XA1931	CH3CH2–		H	CH3–	H	H
XA1932	CH3CH2–		H	CH3–	H	H
XA1933	CH3CH2–		H	CH3–	H	H
XA1934	CH3CH2–		H	CH3–	H	H
XA1935	CH3CH2–		H	CH3–	H	H
XA1936	CH3CH2–		H	CH3–	H	H
XA1937	CH3CH2–		H	CH3–	H	H
XA1938	CH3CH2–		H	CH3–	H	H

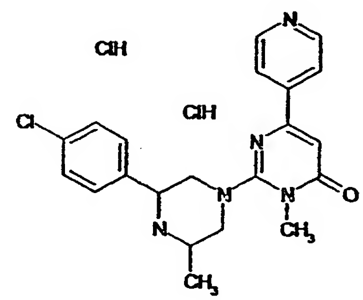
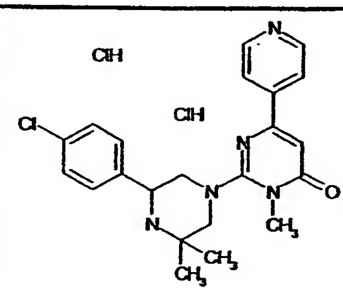
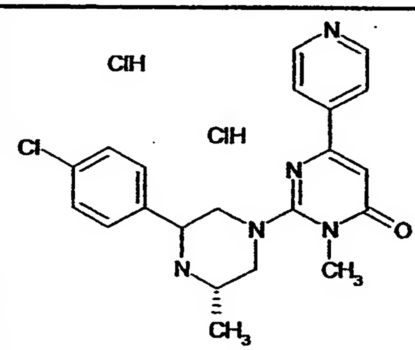
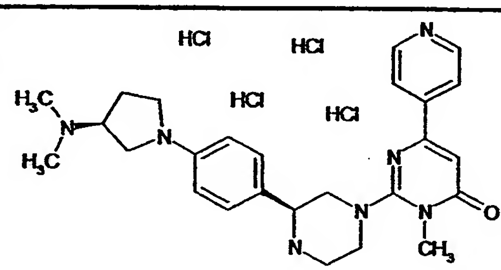
No.	R1	R2	R3	R4	R5	R6
XA1939	CH3CH2-		H	CH3-	H	H
XA1940	CH3CH2-		H	CH3-	H	H
XA1941	CH3CH2-		H	CH3-	H	H
XA1942	CH3CH2-		H	CH3-	H	H
XA1943	CH3CH2-		H	CH3-	H	H
XA1944	CH3CH2-		H	CH3-	H	H
XA1945	CH3CH2-		H	CH3-	H	H
XA1946	CH3CH2-		H	CH3-	H	H
XA1947	CH3CH2-		H	CH3-	H	H
XA1948	CH3CH2-		H	CH3-	H	H
XA1949	CH3CH2-		H	CH3-	H	H
XA1950	CH3CH2-		H	CH3-	H	H
XA1951	CH3CH2-		H	CH3-	H	H
XA1952	CH3CH2-		H	CH3-	H	H
XA1953	CH3CH2-		H	CH3-	H	H
XA1954	CH3CH2-		H	CH3-	H	H
XA1955	CH3CH2-		H	CH3-	H	H
XA1956	CH3CH2-		H	CH3-	H	H
XA1957	CH3CH2-		H	CH3-	H	H
XA1958	CH3CH2-		H	CH3-	H	H
XA1959	CH3CH2-		H	CH3-	H	H
XA1960	CH3CH2-		H	CH3-	H	H

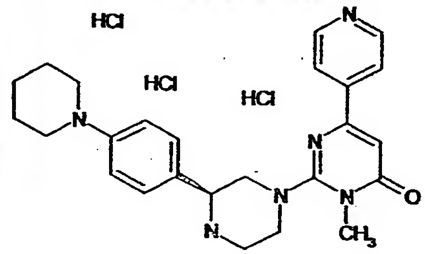
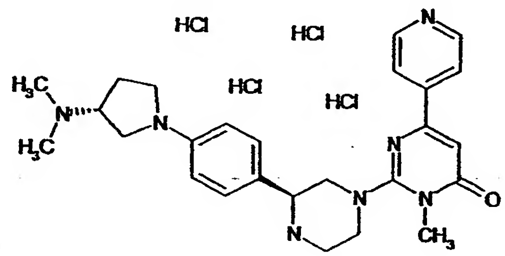
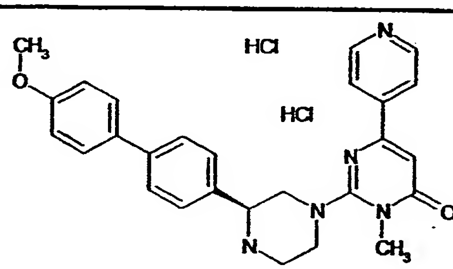
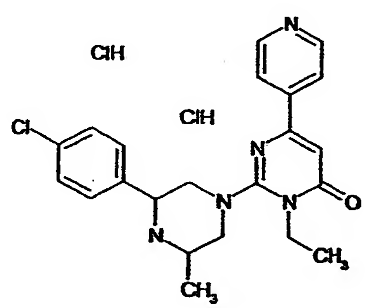
No.	R1	R2	R3	R4	R5	R6
XA1961	CH3CH2–		H	CH3–	H	H
XA1962	CH3CH2–		H	CH3–	H	H
XA1963	CH3CH2–		H	CH3–	H	H
XA1964	CH3CH2–		H	CH3–	H	H
XA1965	CH3CH2–		H	CH3–	H	H
XA1966	CH3CH2–		H	CH3–	H	H
XA1967	CH3CH2–		H	CH3–	H	H
XA1968	CH3CH2–		H	CH3–	H	H
XA1969	CH3CH2–		H	CH3–	H	H
XA1970	CH3CH2–		H	CH3–	H	H
XA1971	CH3CH2–		H	CH3–	H	H
XA1972	CH3CH2–		H	CH3–	H	H

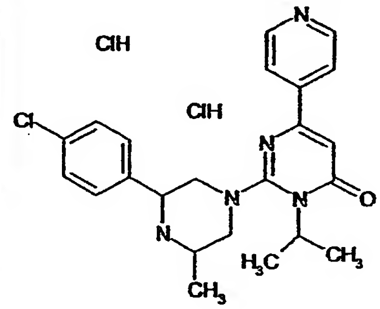
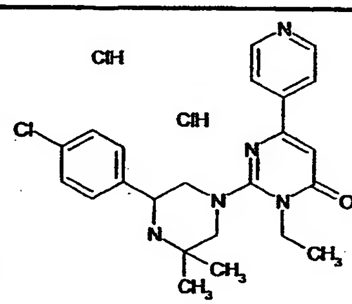
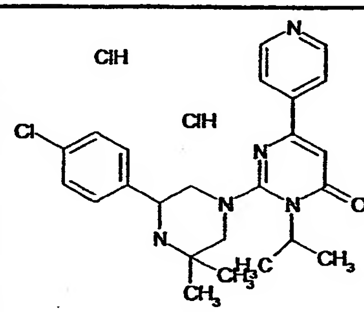
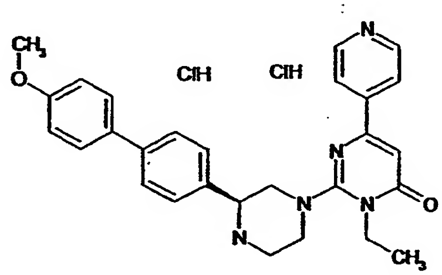
No.	STRUCTURE
XA1973	
XA1974	
XA1975	
XA1976	

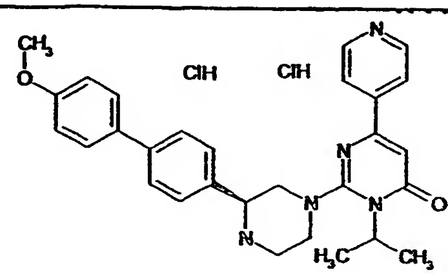
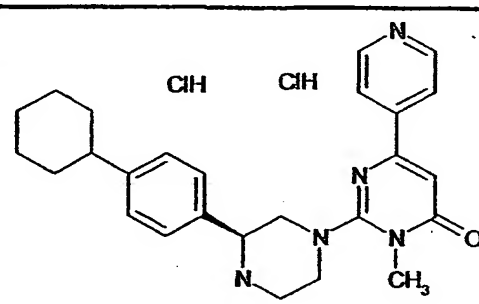
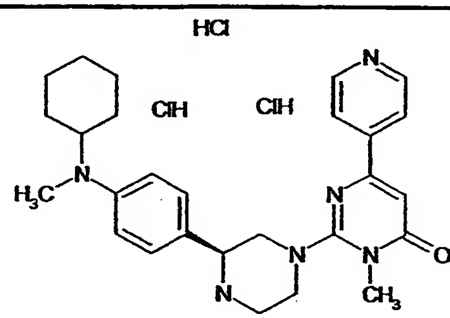
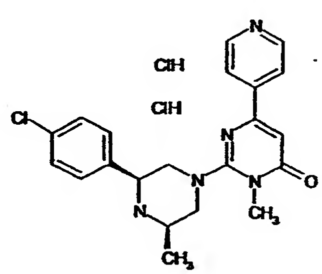
XA1977	
XA1978	
XA1979	
XA1980	

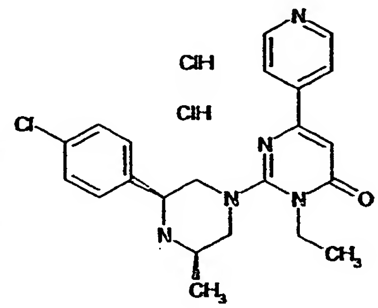
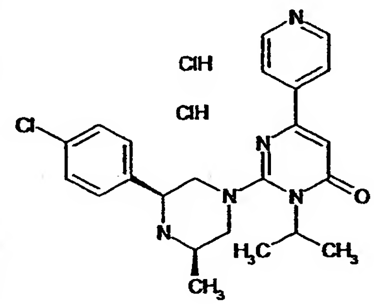
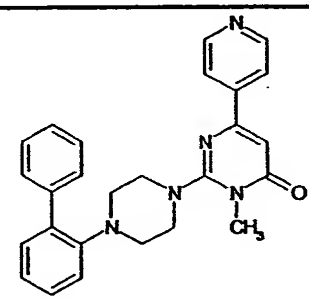
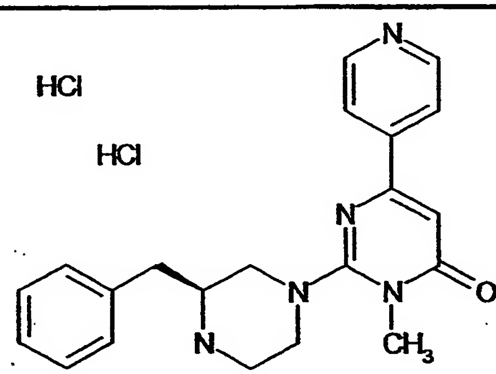
XA1981	
XA1982	
XA1983	
XA1984	

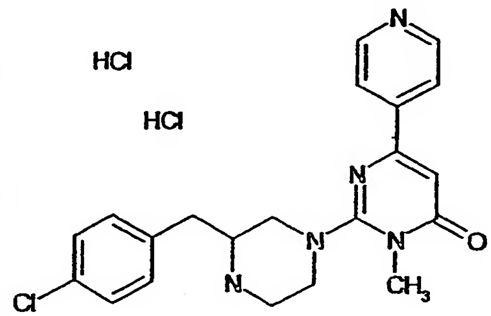
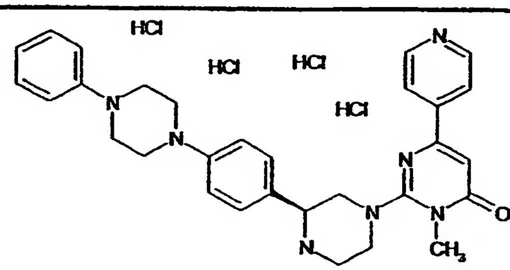
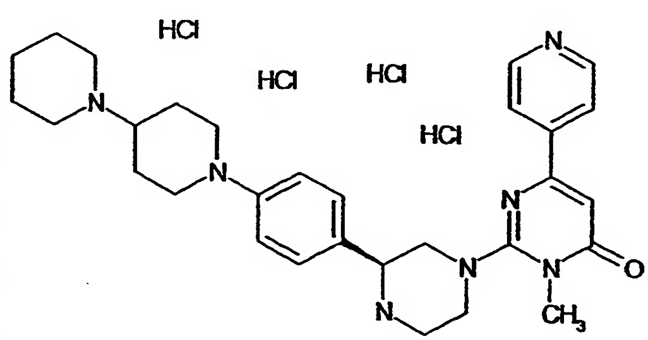
XA1985	
XA1986	
XA1987	
XA1988	

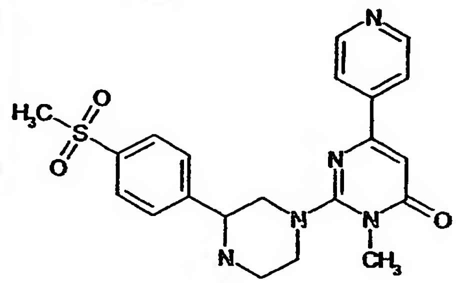
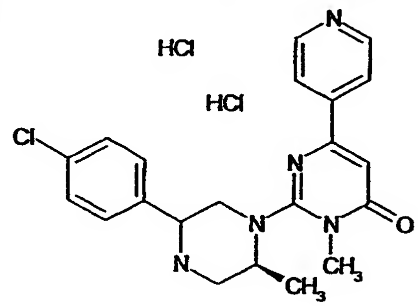
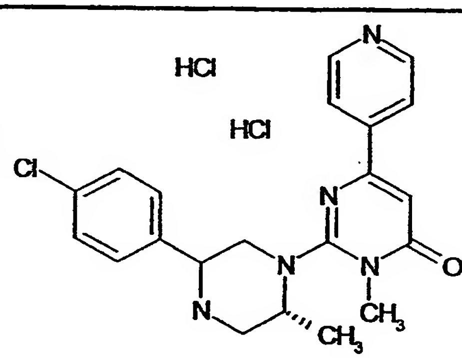
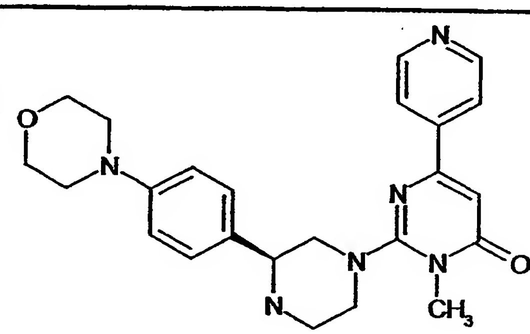
XA1989	
XA1990	
XA1991	
XA1992	

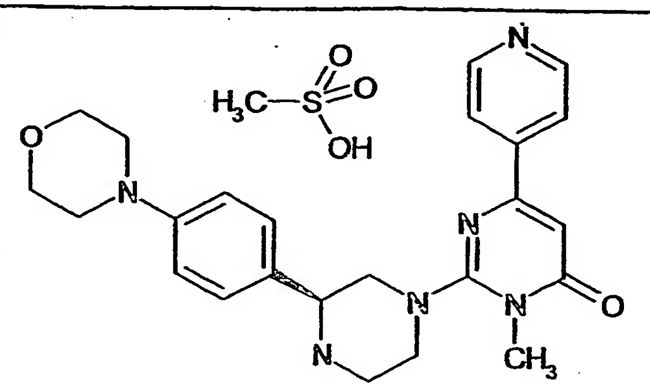
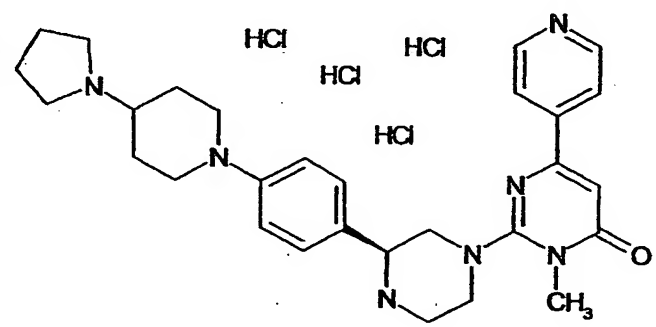
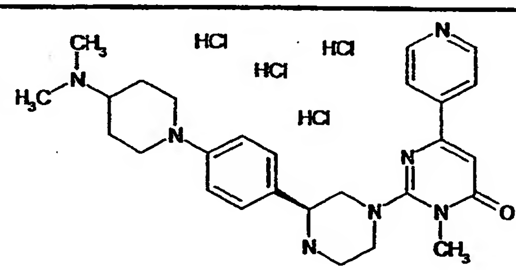
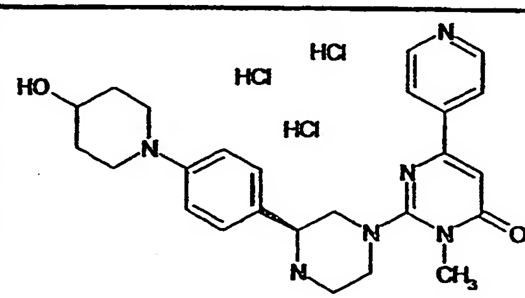
XA1993	
XA1994	
XA1995	
XA1996	

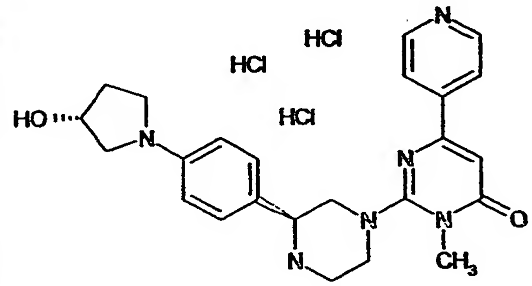
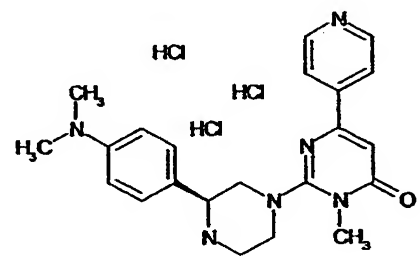
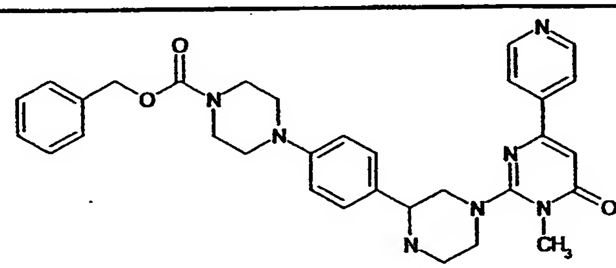
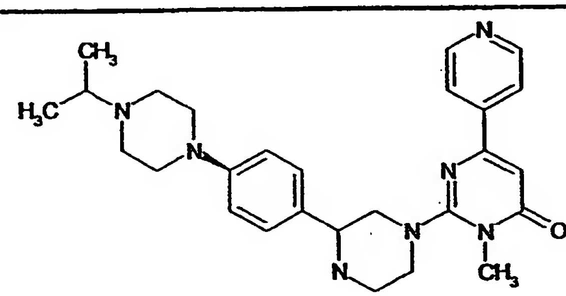
XA1997	
XA1998	
XA1999	
XA2000	

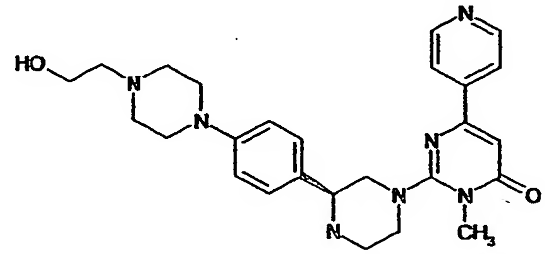
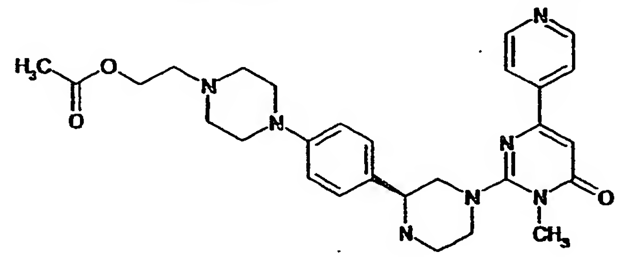
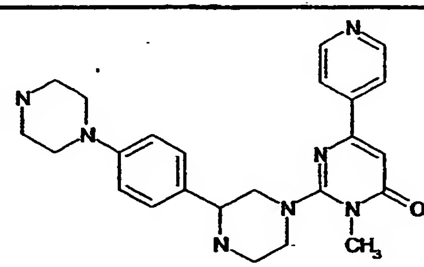
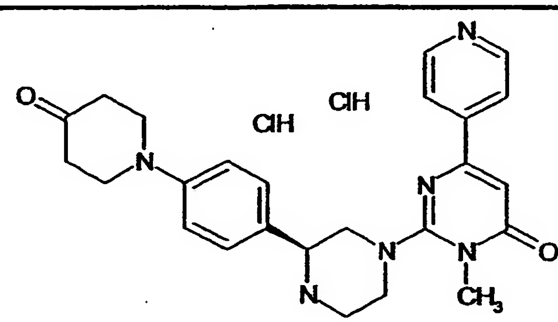
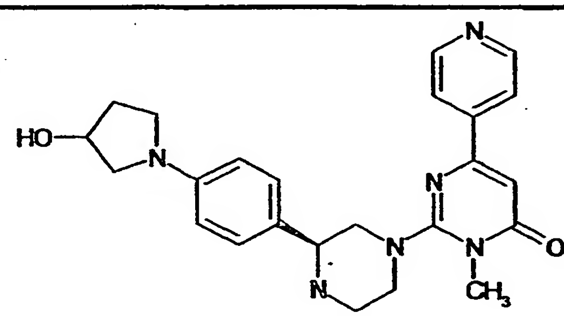
XA2001	
XA2002	
XA2003	
XA2004	

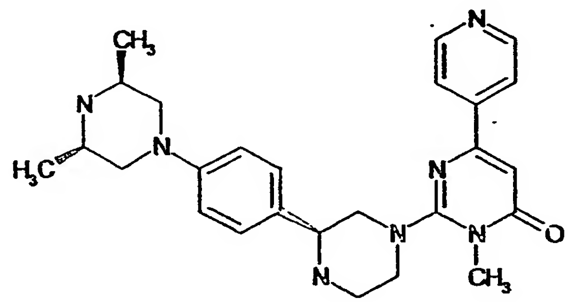
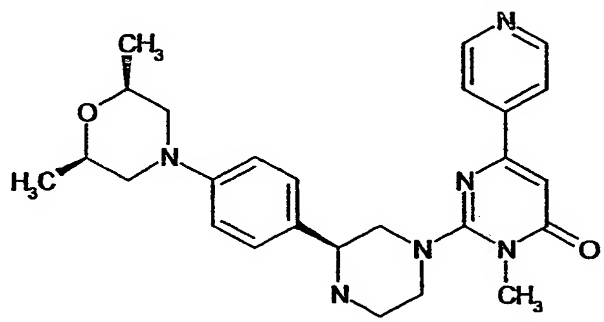
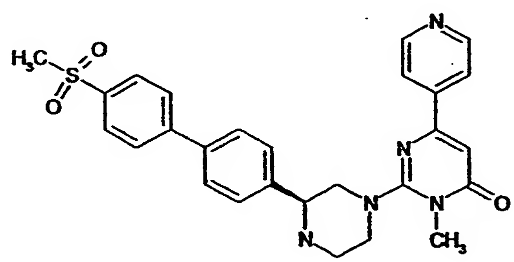
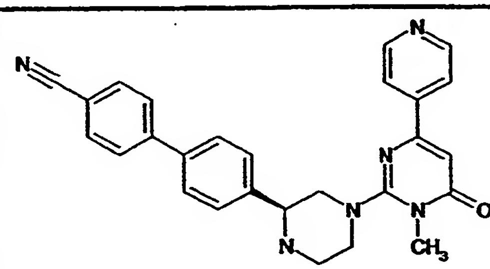
XA2005	
XA2006	
XA2007	

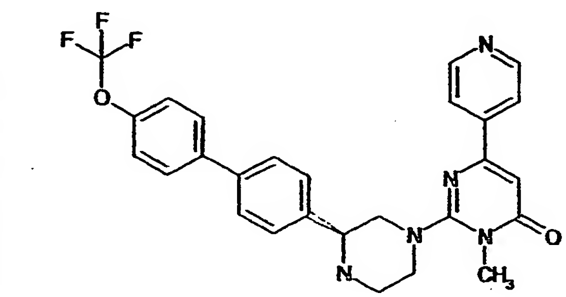
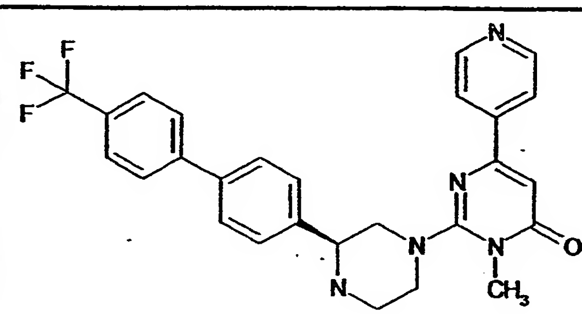
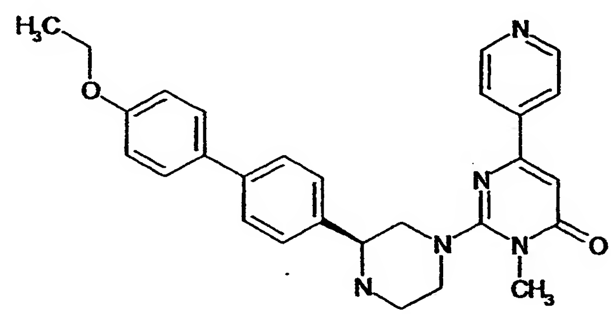
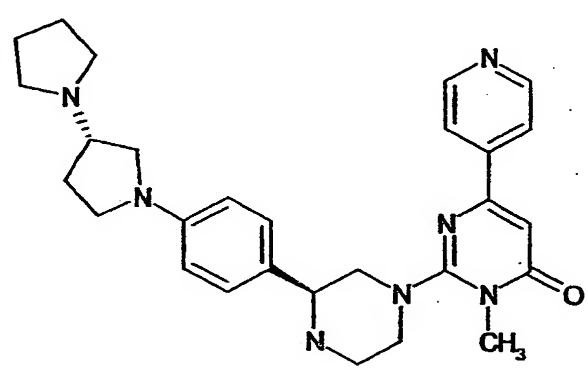
XA2008	
XA2009	
XA2010	
XA2011	

XA2012	
XA2013	
XA2014	
XA2015	

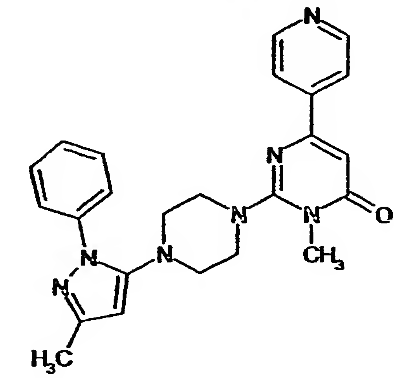
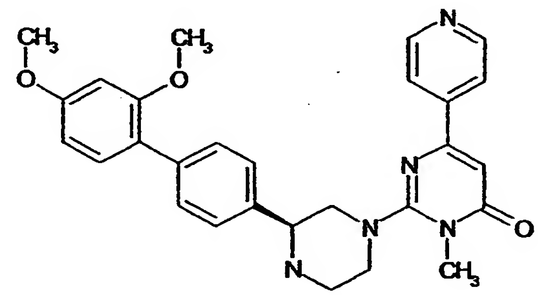
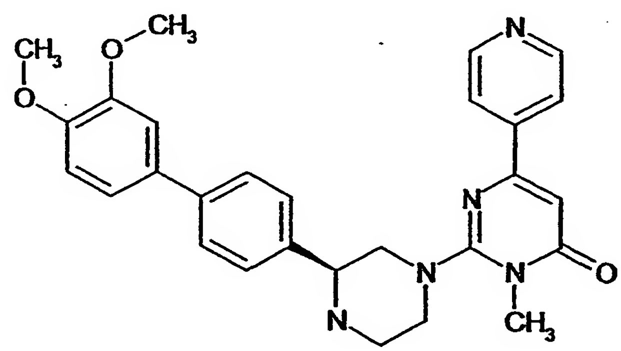
XA2016	
XA2017	
XA2018	
XA2019	

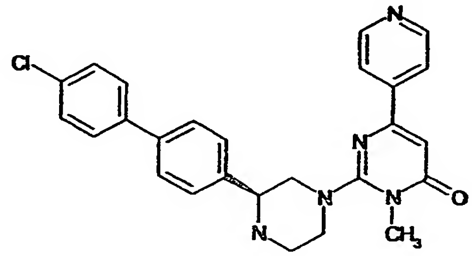
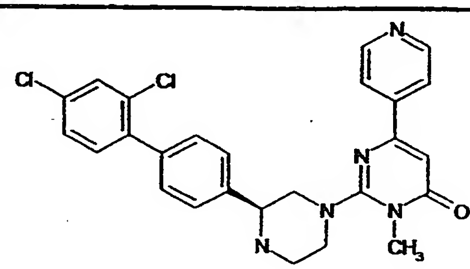
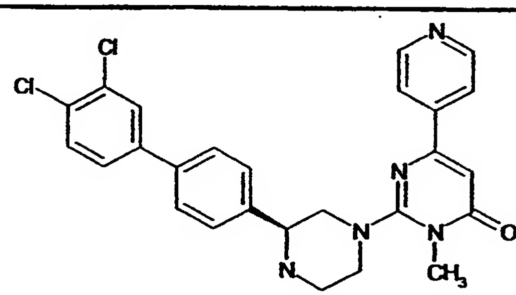
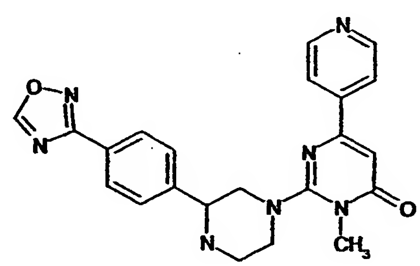
XA2020	
XA2021	
XA2022	
XA2023	
XA2024	

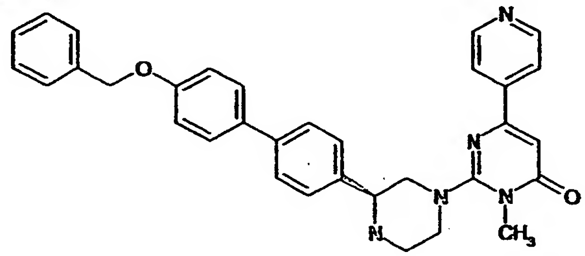
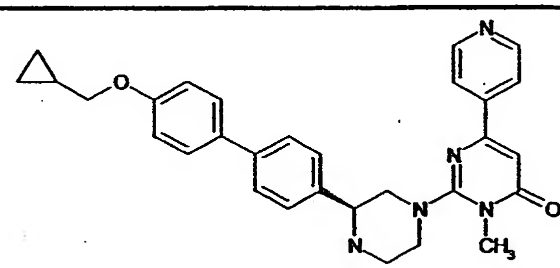
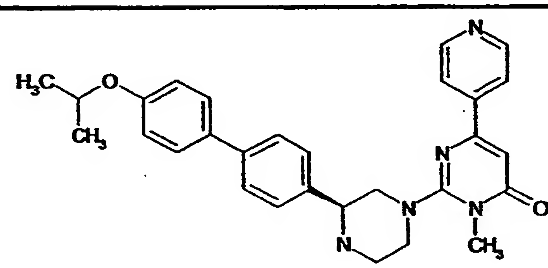
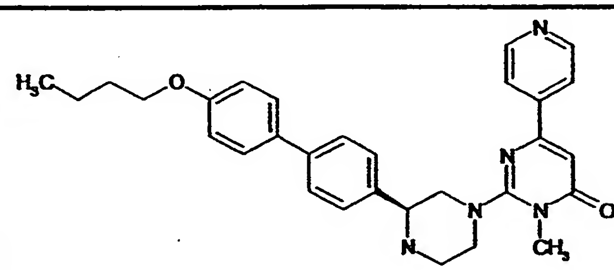
XA2025	
XA2026	
XA2027	
XA2028	

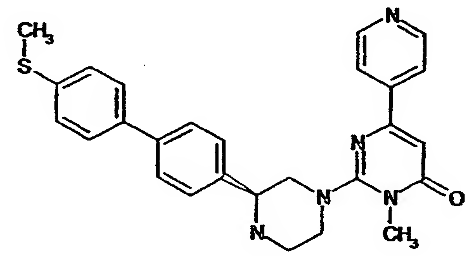
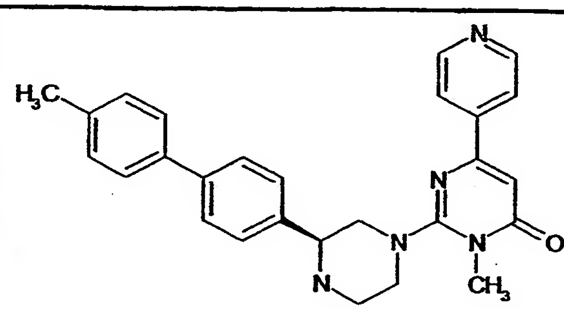
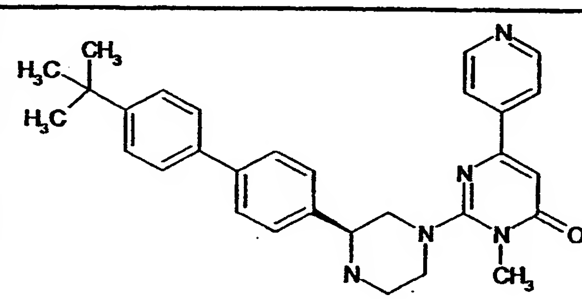
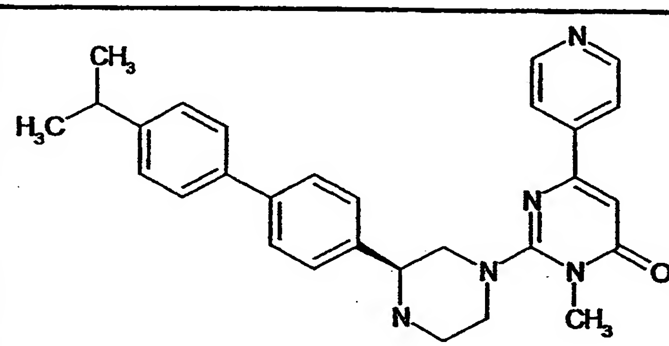
XA2029	
XA2030	
XA2031	
XA2032	

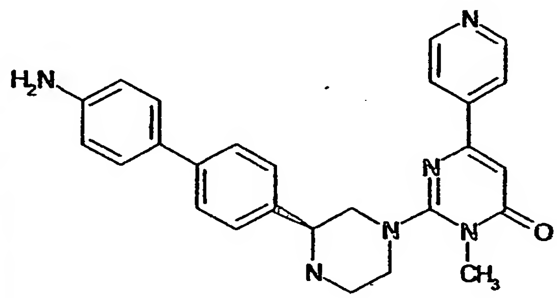
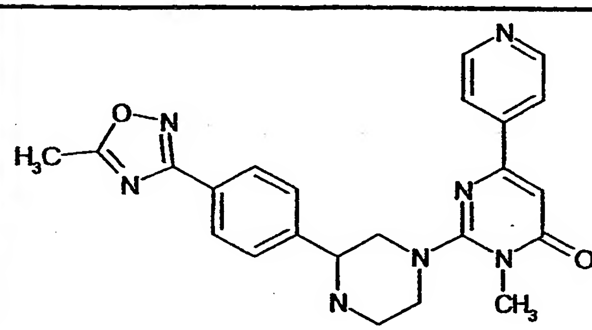
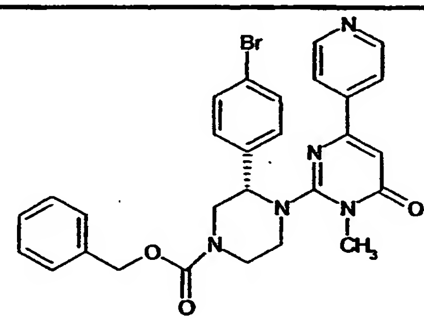
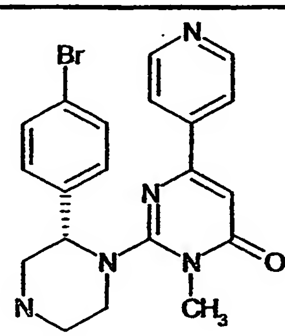
SUBSTITUTE SHEET (RULE 26)

XA2033	
XA2034	
XA2035	

XA2036	
XA2037	
XA2038	
XA2039	

XA2040	
XA2041	
XA2042	
XA2043	

XA2044	
XA2045	
XA2046	
XA2047	

XA2048	
XA2049	
XA2050	
XA2051	

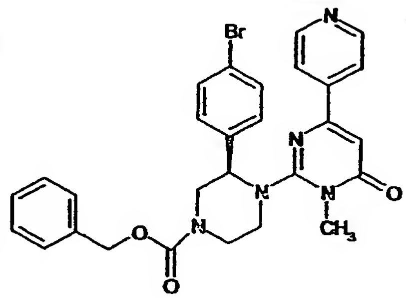
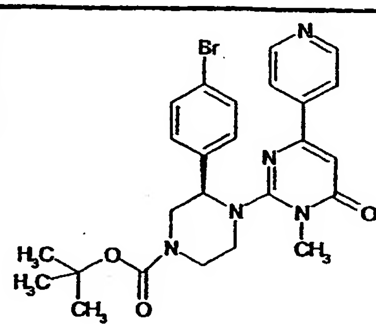
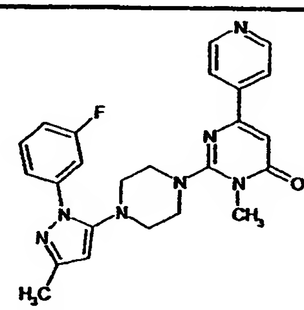
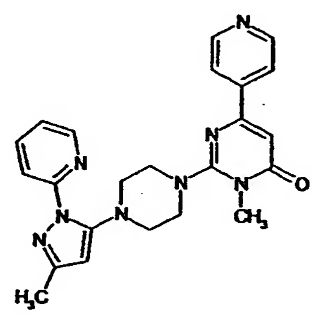
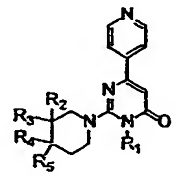
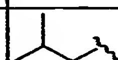
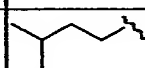
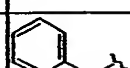
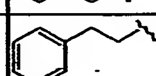
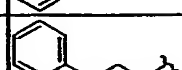
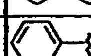
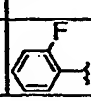
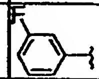
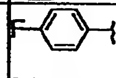
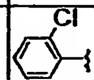
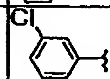
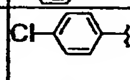
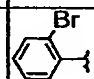
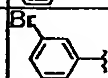
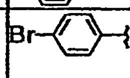
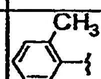
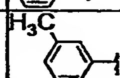
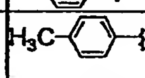
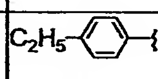
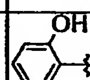
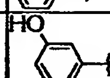
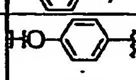
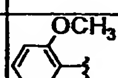
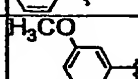
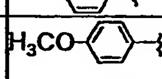
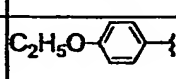
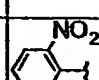
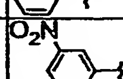
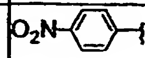
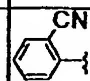
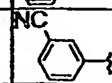
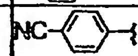
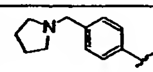
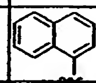
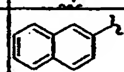
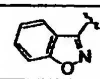
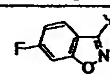
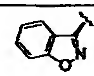
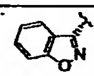
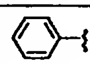
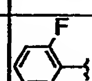
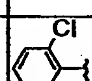
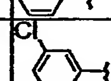
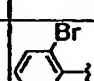
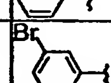
XA2052	
XA2053	
XA2054	
XA2055	

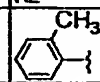
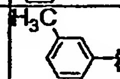
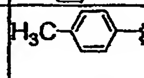
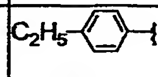
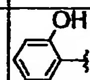
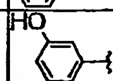
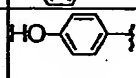
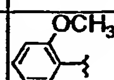
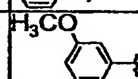
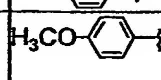
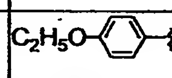
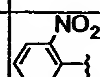
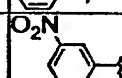
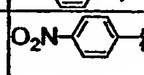
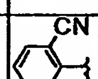
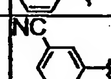
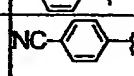
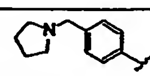
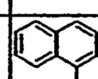
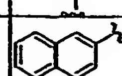
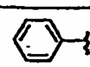
Table-2

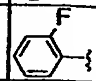
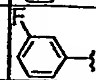
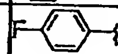
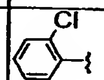
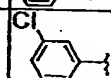
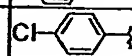
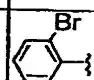
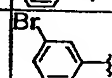
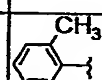
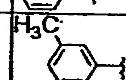
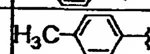
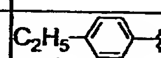
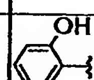
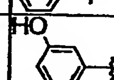
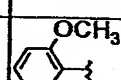
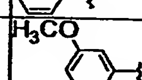
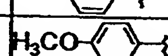
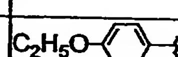
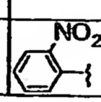


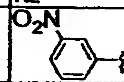
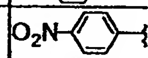
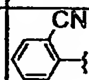
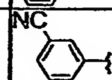
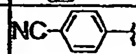
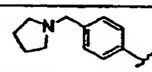
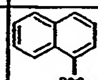
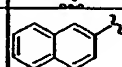
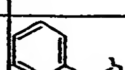
No	R1	R2	R3	R4	R5
XB1	CH3-	CH3-	H	H	H
XB2	CH3-	CH3CH2-	H	H	H
XB3	CH3-		H	H	H
XB4	CH3-		H	H	H
XB5	CH3-		H	H	H
XB6	CH3-		H	H	H
XB7	CH3-		H	H	H
XB8	CH3-		H	H	H
XB9	CH3-		H	H	H
XB10	CH3-		H	H	H
XB11	CH3-		H	H	H
XB12	CH3-		H	H	H
XB13	CH3-		H	H	H
XB14	CH3-		H	H	H
XB15	CH3-		H	H	H
XB16	CH3-		H	H	H
XB17	CH3-		H	H	H

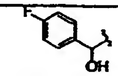
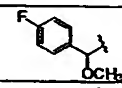
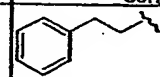
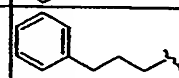
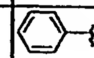
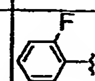
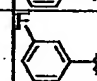
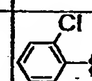
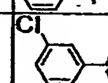
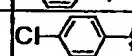
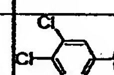
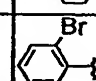
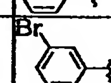
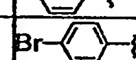
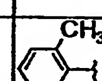
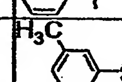
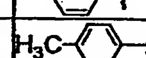
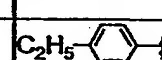
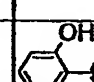
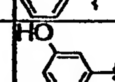
No	R1	R2	R3	R4	R5
XB18	CH3-		H	H	H
XB19	CH3-		H	H	H
XB20	CH3-		H	H	H
XB21	CH3-		H	H	H
XB22	CH3-		H	H	H
XB23	CH3-		H	H	H
XB24	CH3-		H	H	H
XB25	CH3-		H	H	H
XB26	CH3-		H	H	H
XB27	CH3-		H	H	H
XB28	CH3-		H	H	H
XB29	CH3-		H	H	H
XB30	CH3-		H	H	H
XB31	CH3-		H	H	H
XB32	CH3-		H	H	H
XB33	CH3-		H	H	H
XB34	CH3-		H	H	H
XB35	CH3-		H	H	H
XB36	CH3-		H	H	H
XB37	CH3-		H	H	H
XB38	CH3-		H	H	H

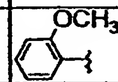
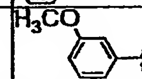
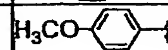
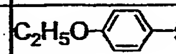
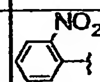
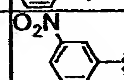
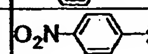
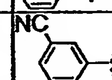
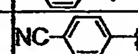
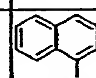
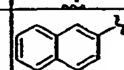
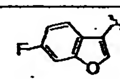
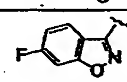
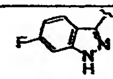
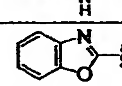
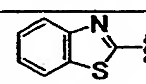
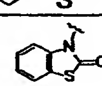
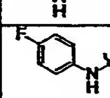
No	R1	R2	R3	R4	R5
XB39	CH3-		H	H	H
XB40	CH3-		H	H	H
XB41	CH3-		H	H	H
XB42	CH3-		H	H	H
XB43	CH3-		H	H	H
XB44	CH3-		H	H	H
XB45	CH3-		H	H	H
XB46	CH3-		H	H	H
XB47	CH3-		H	H	H
XB48	CH3-		H	H	H
XB49	CH3-		H	H	H
XB50	CH3-		OH	H	H
XB51	CH3-		OH	H	H
XB52	CH3-		OH	H	H
XB53	CH3-		OH	H	H
XB54	CH3-		OH	H	H
XB55	CH3-		OH	H	H
XB56	CH3-		OH	H	H
XB57	CH3-		OH	H	H
XB58	CH3-		OH	H	H
XB59	CH3-		OH	H	H

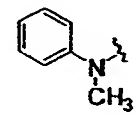
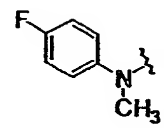
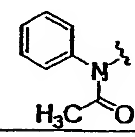
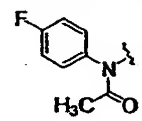
No	R1	R2	R3	R4	R5
XB60	CH3–		OH	H	H
XB61	CH3–		OH	H	H
XB62	CH3–		OH	H	H
XB63	CH3–		OH	H	H
XB64	CH3–		OH	H	H
XB65	CH3–		OH	H	H
XB66	CH3–		OH	H	H
XB67	CH3–		OH	H	H
XB68	CH3–		OH	H	H
XB69	CH3–		OH	H	H
XB70	CH3–		OH	H	H
XB71	CH3–		OH	H	H
XB72	CH3–		OH	H	H
XB73	CH3–		OH	H	H
XB74	CH3–		OH	H	H
XB75	CH3–		OH	H	H
XB76	CH3–		OH	H	H
XB77	CH3–		OH	H	H
XB78	CH3–		OH	H	H
XB79	CH3–		OH	H	H
XB80	CH3–		CN	H	H

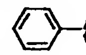
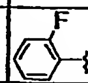
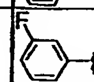
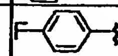
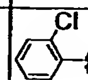
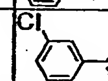
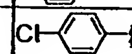
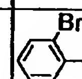
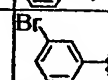
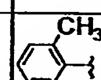
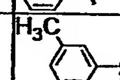
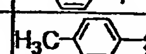
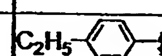
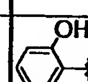
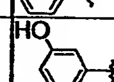
No	R1	R2	R3	R4	R5
XB81	CH3–		CN	H	H
XB82	CH3–		CN	H	H
XB83	CH3–		CN	H	H
XB84	CH3–		CN	H	H
XB85	CH3–		CN	H	H
XB86	CH3–		CN	H	H
XB87	CH3–		CN	H	H
XB88	CH3–		CN	H	H
XB89	CH3–		CN	H	H
XB90	CH3–		CN	H	H
XB91	CH3–		CN	H	H
XB92	CH3–		CN	H	H
XB93	CH3–		CN	H	H
XB94	CH3–		CN	H	H
XB95	CH3–		CN	H	H
XB96	CH3–		CN	H	H
XB97	CH3–		CN	H	H
XB98	CH3–		CN	H	H
XB99	CH3–		CN	H	H
XB100	CH3–		CN	H	H
XB101	CH3–		CN	H	H

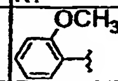
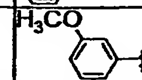
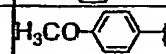
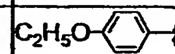
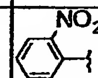
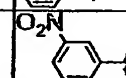
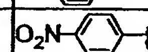
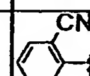
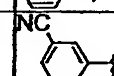
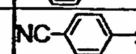
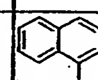
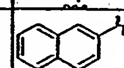
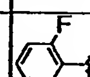
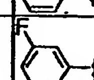
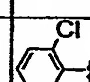
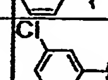
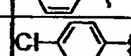
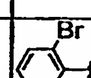
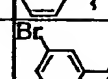
No	R1	R2	R3	R4	R5
XB102	CH3-		CN	H	H
XB103	CH3-		CN	H	H
XB104	CH3-		CN	H	H
XB105	CH3-		CN	H	H
XB106	CH3-		CN	H	H
XB107	CH3-		CN	H	H
XB108	CH3-		CN	H	H
XB109	CH3-		CN	H	H
XB110	CH3-	H	H	CH3-	H
XB111	CH3-	H	H	CH3CH2-	H
XB112	CH3-	H	H		H
XB113	CH3-	H	H		H
XB114	CH3-	H	H		H
XB115	CH3-	H	H		H
XB116	CH3-	H	H		H
XB117	CH3-	H	H		H
XB118	CH3-	H	H		H
XB119	CH3-	H	H		H
XB120	CH3-	H	H		H
XB121	CH3-	H	H		H
XB122	CH3-	H	H		H

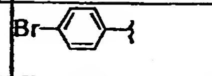
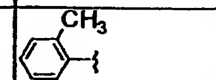
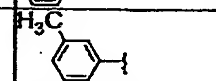
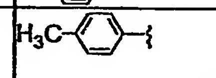
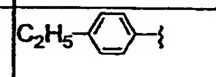
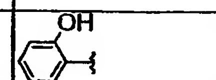
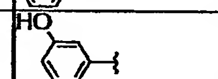
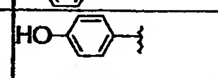
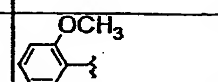
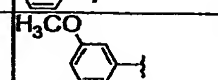
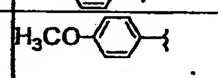
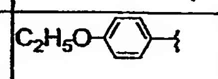
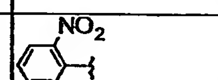
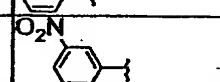
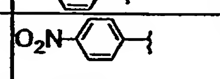
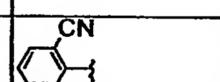
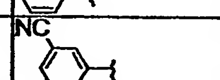
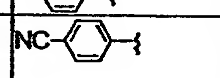
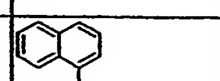
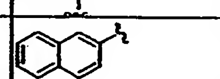
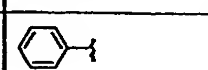
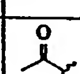
No	R1	R2	R3	R4	R5
XB123	CH3-	H	H		H
XB124	CH3-	H	H		H
XB125	CH3-	H	H		H
XB126	CH3-	H	H		H
XB127	CH3-	H	H		H
XB128	CH3-	H	H		H
XB129	CH3-	H	H		H
XB130	CH3-	H	H		H
XB131	CH3-	H	H		H
XB132	CH3-	H	H		H
XB133	CH3-	H	H		H
XB134	CH3-	H	H		H
XB135	CH3-	H	H		H
XB136	CH3-	H	H		H
XB137	CH3-	H	H		H
XB138	CH3-	H	H		H
XB139	CH3-	H	H		H
XB140	CH3-	H	H		H
XB141	CH3-	H	H		H
XB142	CH3-	H	H		H
XB143	CH3-	H	H		H

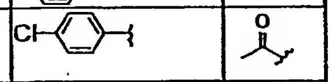
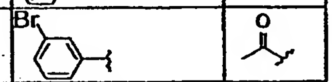
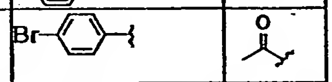
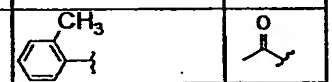
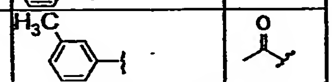
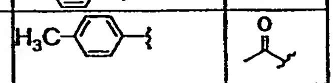
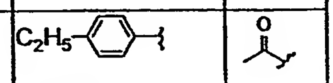
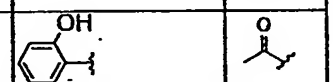
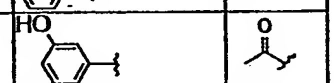
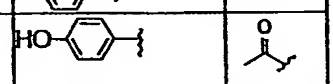
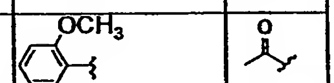
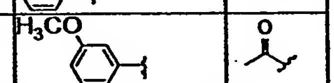
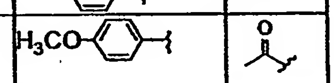
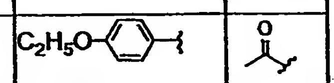
No	R1	R2	R3	R4	R5
XB144	CH3–	H	H		H
XB145	CH3–	H	H		H
XB146	CH3–	H	H		H
XB147	CH3–	H	H		H
XB148	CH3–	H	H		H
XB149	CH3–	H	H		H
XB150	CH3–	H	H		H
XB151	CH3–	H	H		H
XB152	CH3–	H	H		H
XB153	CH3–	H	H		H
XB154	CH3–	H	H		H
XB155	CH3–	H	H		H
XB156	CH3–	H	H		H
XB157	CH3–	H	H		H
XB158	CH3–	H	H		H
XB159	CH3–	H	H		H
XB160	CH3–	H	H		H
XB161	CH3–	H	H		H
XB162	CH3–	H	H		H
XB163	CH3–	H	H		H
XB164	CH3–	H	H		H

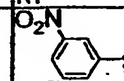
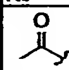
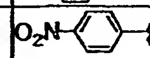
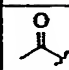
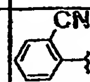
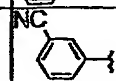
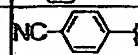
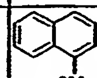
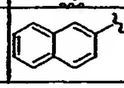
No	R1	R2	R3	R4	R5
XB165	CH3-	H	H		H
XB166	CH3-	H	H		H
XB167	CH3-	H	H		H
XB168	CH3-	H	H		H

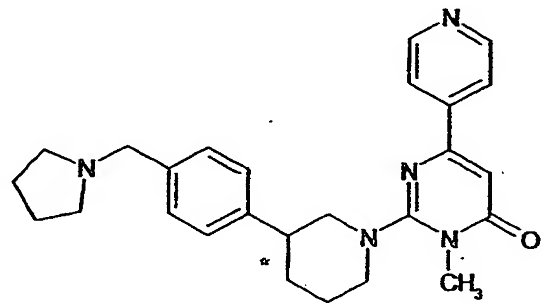
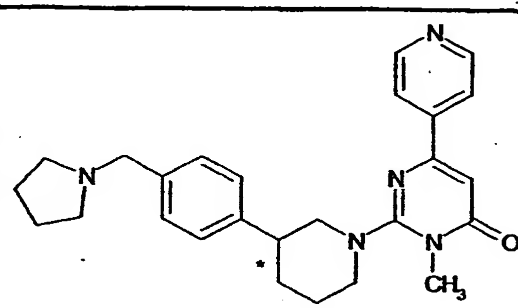
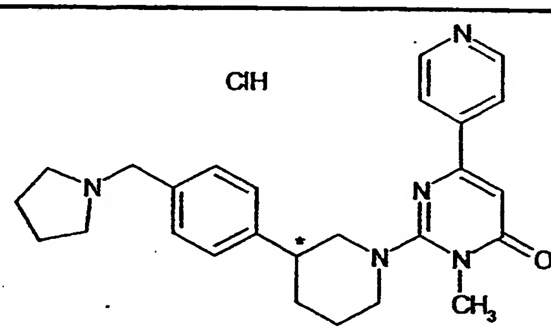
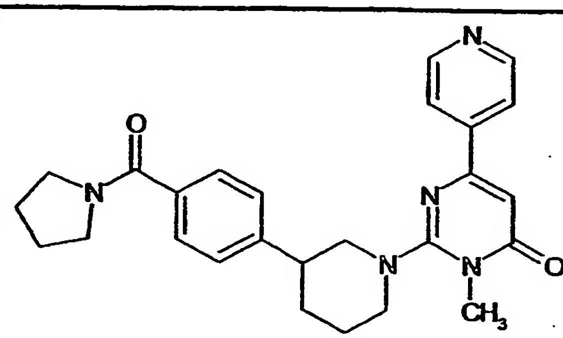
No	R1	R2	R3	R4	R5
XB169	CH3-	H	H		OH
XB170	CH3-	H	H		OH
XB171	CH3-	H	H		OH
XB172	CH3-	H	H		OH
XB173	CH3-	H	H		OH
XB174	CH3-	H	H		OH
XB175	CH3-	H	H		OH
XB176	CH3-	H	H		OH
XB177	CH3-	H	H		OH
XB178	CH3-	H	H		OH
XB179	CH3-	H	H		OH
XB180	CH3-	H	H		OH
XB181	CH3-	H	H		OH
XB182	CH3-	H	H		OH
XB183	CH3-	H	H		OH
XB184	CH3-	H	H		OH
XB185	CH3-	H	H		OH

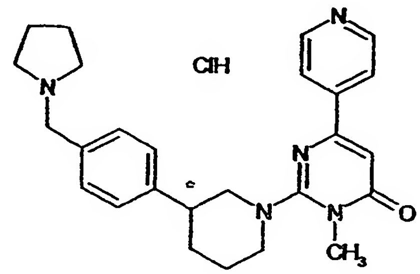
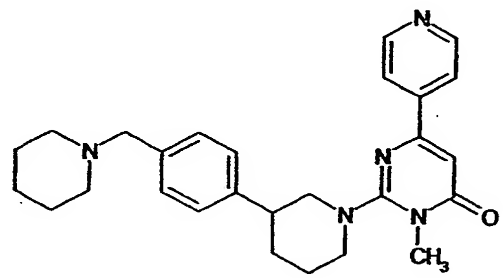
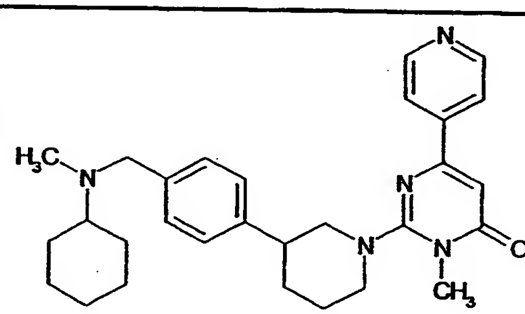
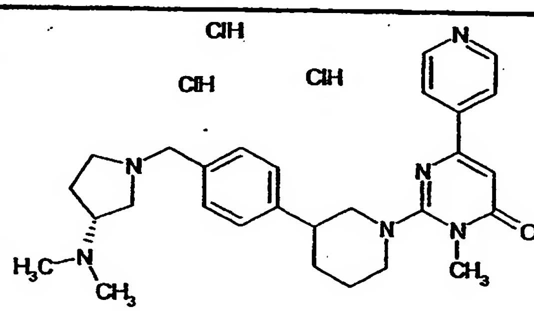
No	R1	R2	R3	R4	R5
XB186	CH3–	H	H		OH
XB187	CH3–	H	H		OH
XB188	CH3–	H	H		OH
XB189	CH3–	H	H		OH
XB190	CH3–	H	H		OH
XB191	CH3–	H	H		OH
XB192	CH3–	H	H		OH
XB193	CH3–	H	H		OH
XB194	CH3–	H	H		OH
XB195	CH3–	H	H		OH
XB196	CH3–	H	H		OH
XB197	CH3–	H	H		OH
XB198	CH3–	H	H		CN
XB199	CH3–	H	H		CN
XB200	CH3–	H	H		CN
XB201	CH3–	H	H		CN
XB202	CH3–	H	H		CN
XB203	CH3–	H	H		CN
XB204	CH3–	H	H		CN
XB205	CH3–	H	H		CN
XB206	CH3–	H	H		CN

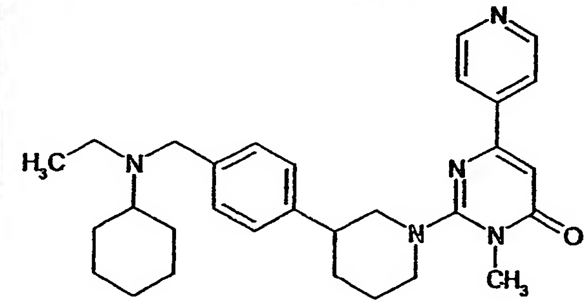
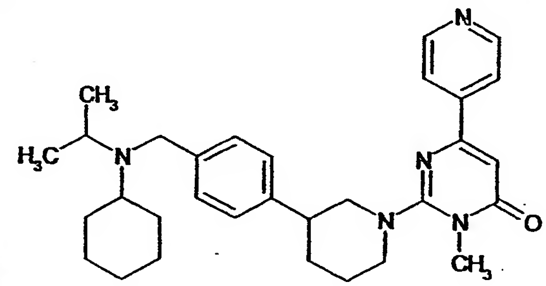
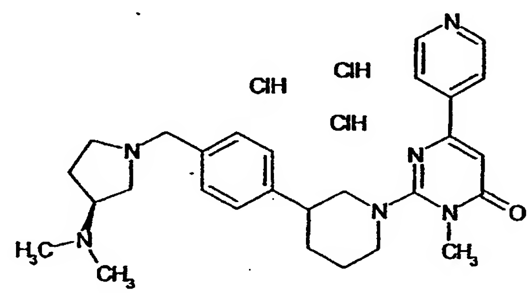
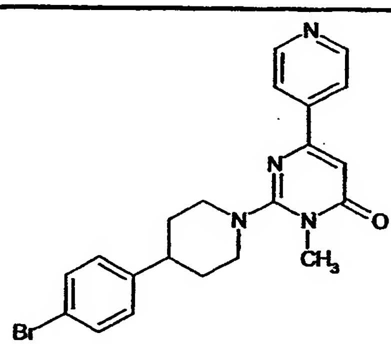
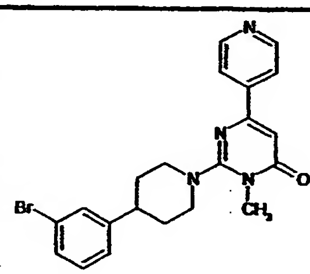
No	R1	R2	R3	R4	R5
XB207	CH3–	H	H		CN
XB208	CH3–	H	H		CN
XB209	CH3–	H	H		CN
XB210	CH3–	H	H		CN
XB211	CH3–	H	H		CN
XB212	CH3–	H	H		CN
XB213	CH3–	H	H		CN
XB214	CH3–	H	H		CN
XB215	CH3–	H	H		CN
XB216	CH3–	H	H		CN
XB217	CH3–	H	H		CN
XB218	CH3–	H	H		CN
XB219	CH3–	H	H		CN
XB220	CH3–	H	H		CN
XB221	CH3–	H	H		CN
XB222	CH3–	H	H		CN
XB223	CH3–	H	H		CN
XB224	CH3–	H	H		CN
XB225	CH3–	H	H		CN
XB226	CH3–	H	H		CN
XB227	CH3–	H	H		

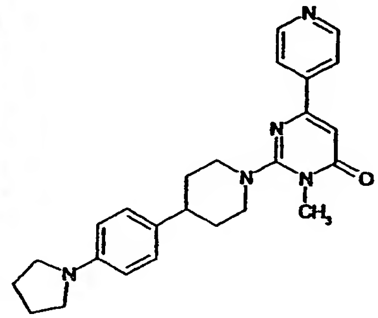
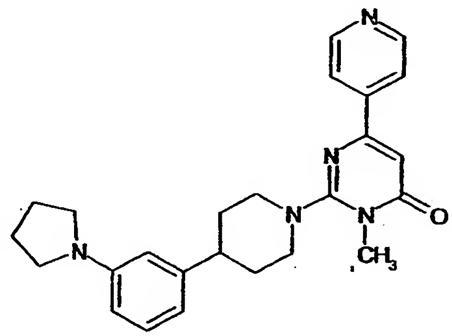
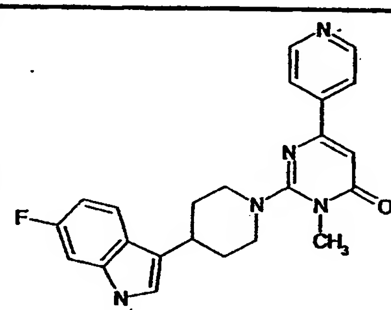
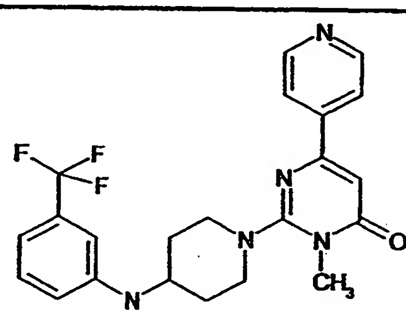
No	R1	R2	R3	R4	R5
XB228	CH3-	H	H		
XB229	CH3-	H	H		
XB230	CH3-	H	H		
XB231	CH3-	H	H		
XB232	CH3-	H	H		
XB233	CH3-	H	H		
XB234	CH3-	H	H		
XB235	CH3-	H	H		
XB236	CH3-	H	H		
XB237	CH3-	H	H		
XB238	CH3-	H	H		
XB239	CH3-	H	H		
XB240	CH3-	H	H		
XB241	CH3-	H	H		
XB242	CH3-	H	H		
XB243	CH3-	H	H		
XB244	CH3-	H	H		
XB245	CH3-	H	H		
XB246	CH3-	H	H		
XB247	CH3-	H	H		
XB248	CH3-	H	H		

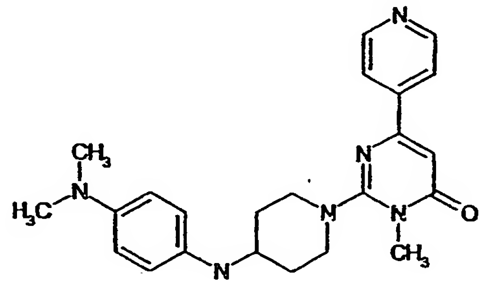
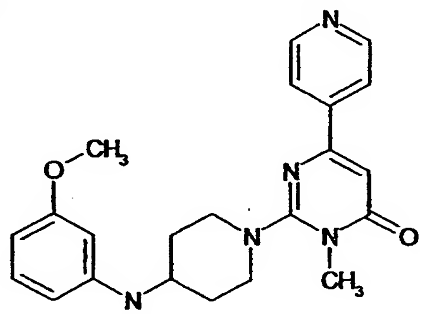
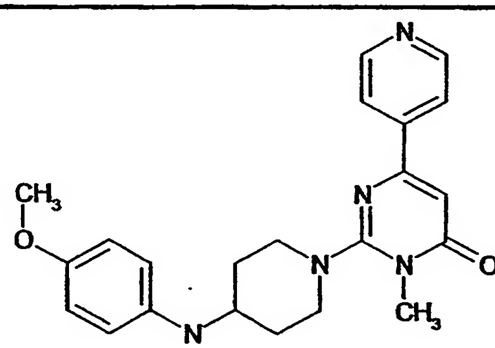
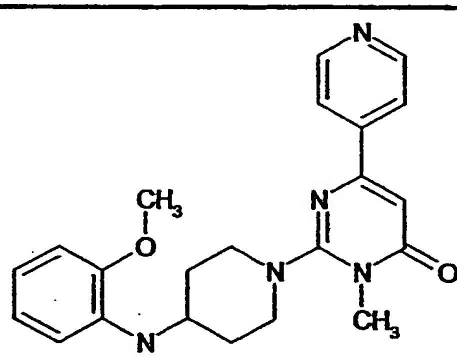
No	R1	R2	R3	R4	R5
XB249	CH3-	H	H		
XB250	CH3-	H	H		
XB251	CH3-	H	H		
XB252	CH3-	H	H		
XB253	CH3-	H	H		
XB254	CH3-	H	H		
XB255	CH3-	H	H		

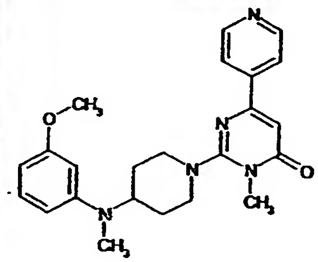
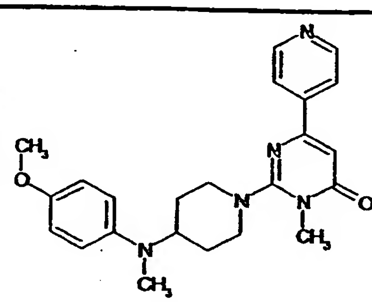
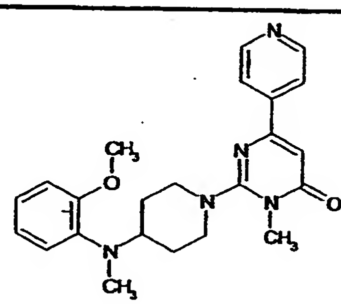
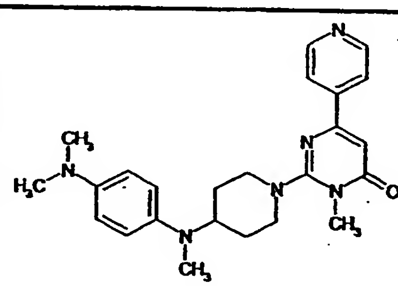
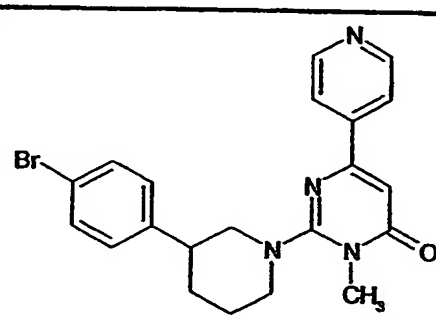
No.	STRUCTURE
XB256	
XB257	
XB258	
XB259	

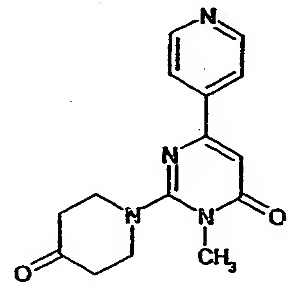
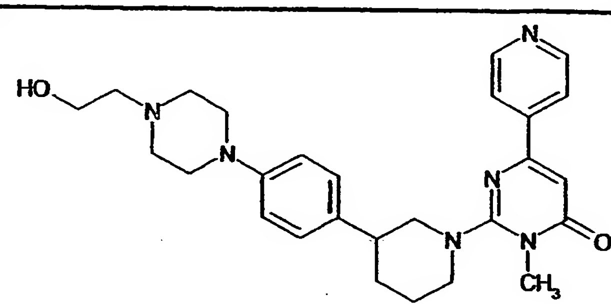
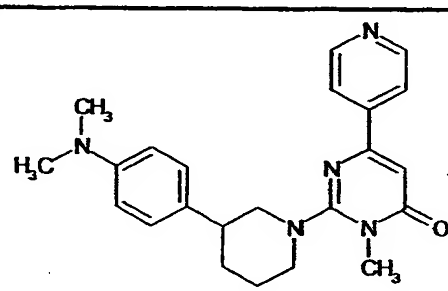
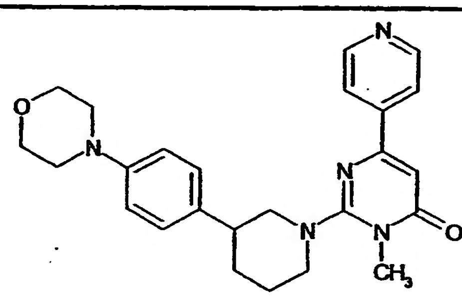
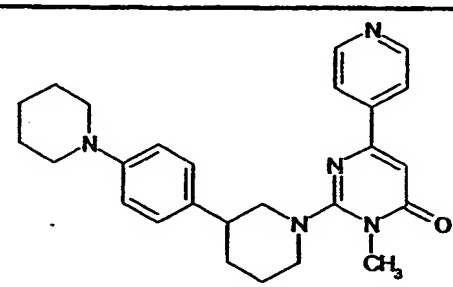
XB260	
XB261	
XB262	
XB263	

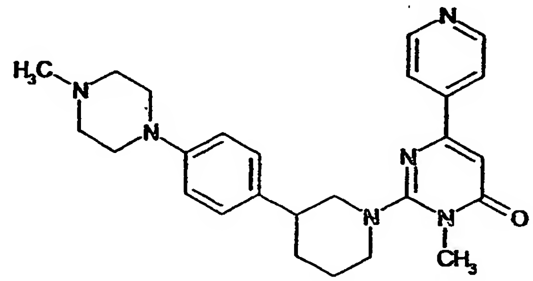
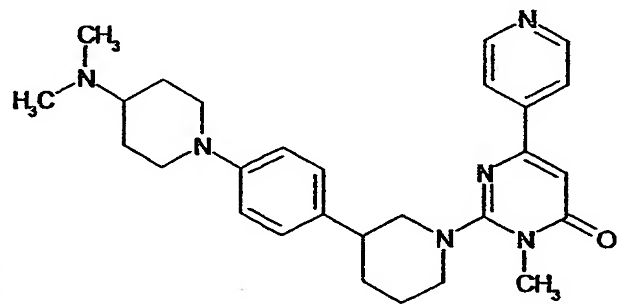
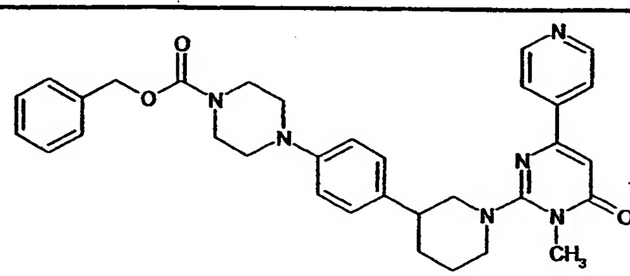
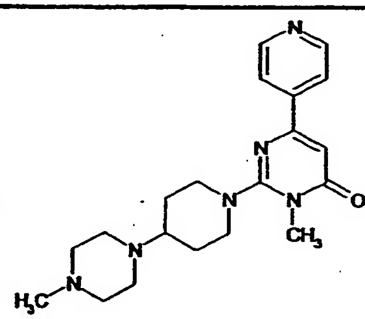
XB264	
XB265	
XB266	
XB267	
XB268	

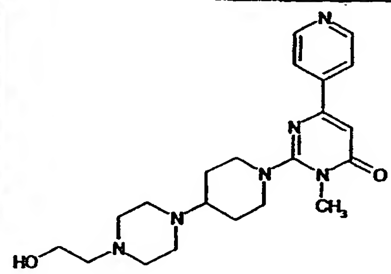
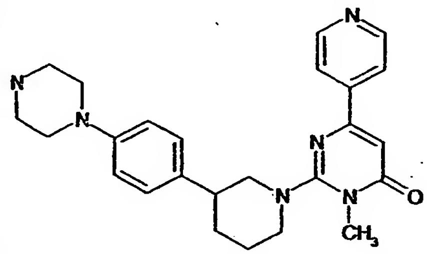
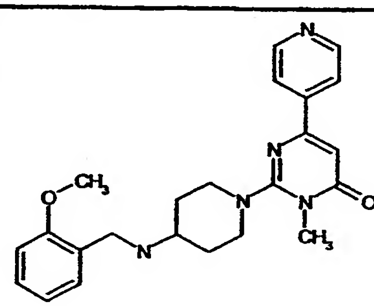
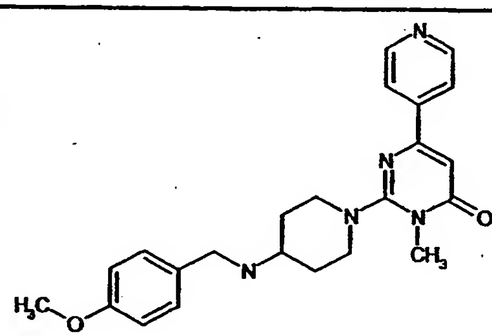
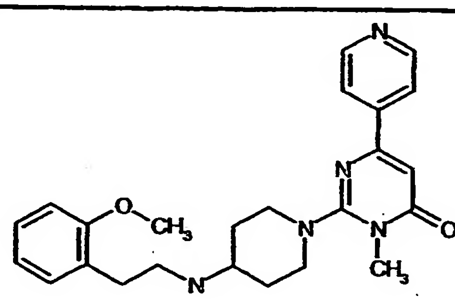
XB269	
XB270	
XB271	
XB272	

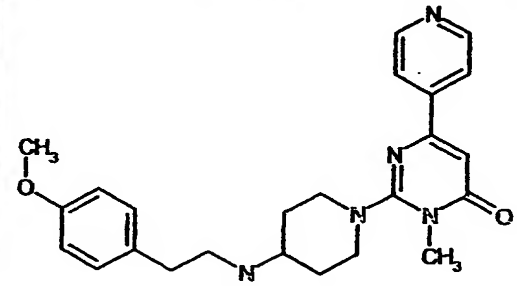
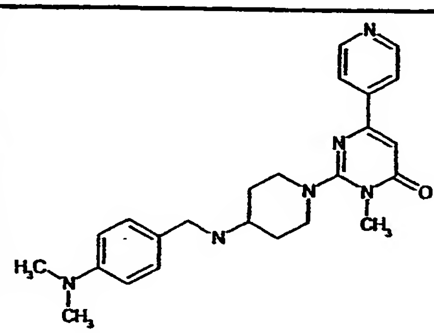
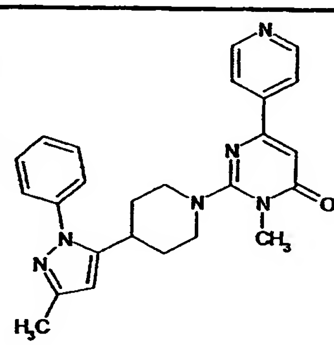
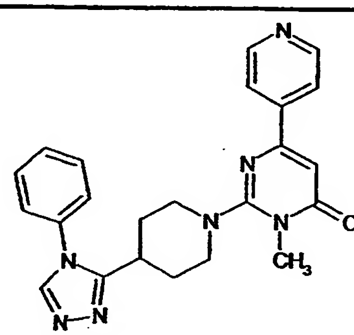
XB273	
XB274	
XB275	
XB276	

XB277	
XB278	
XB279	
XB280	
XB281	

XB282	
XB283	
XB284	
XB285	
XB286	

XB287	
XB288	
XB289	
XB290	

XB291	
XB292	
XB293	
XB294	
XB295	

XB296	
XB297	
XB298	
XB299	

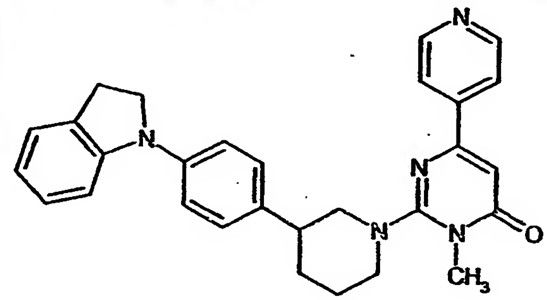
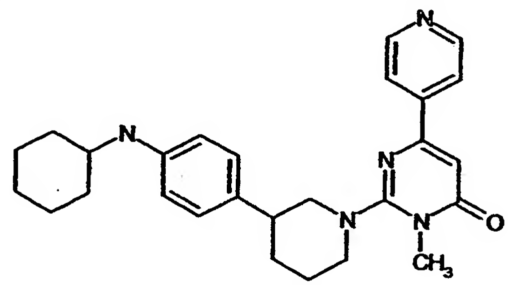
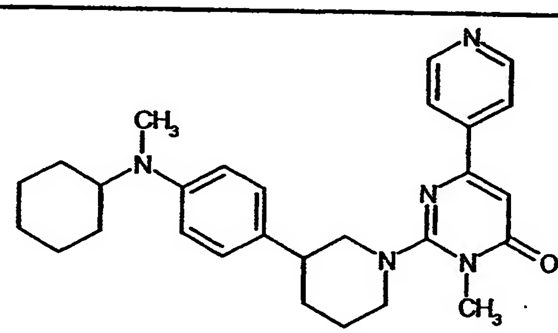
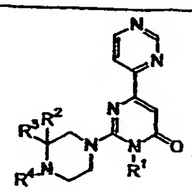
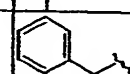
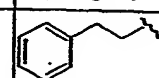
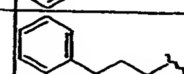
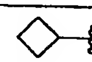
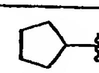
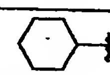
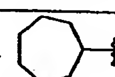
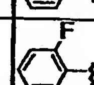
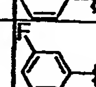
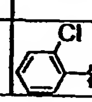
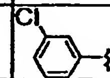
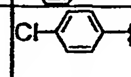
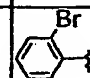
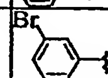
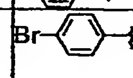
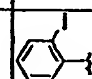
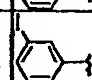
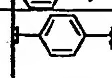
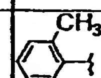
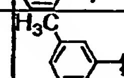
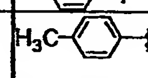
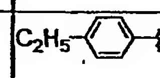
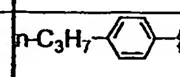
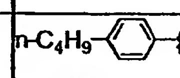
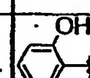
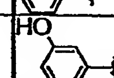
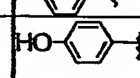
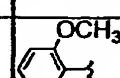
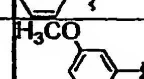
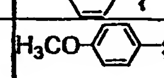
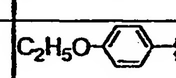
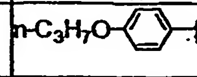
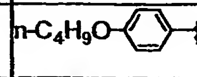
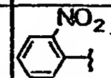
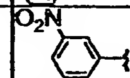
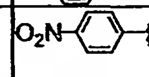
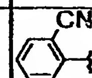
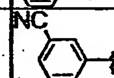
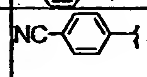
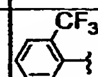
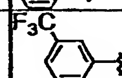
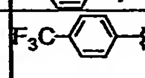
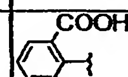
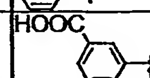
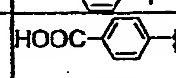
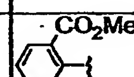
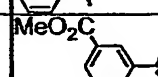
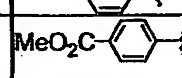
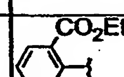
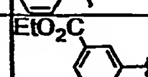
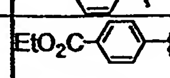
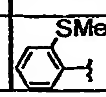
XB300	
XB301	
XB302	

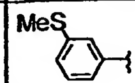
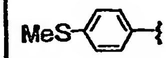
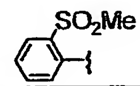
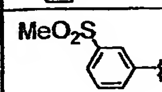
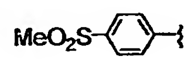
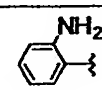
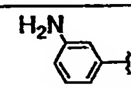
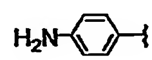
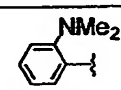
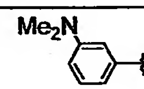
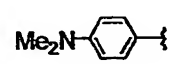
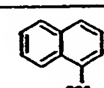
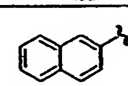
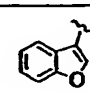
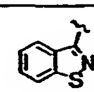
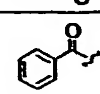
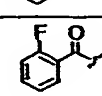
Table-3

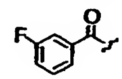
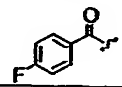
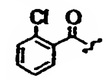
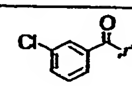


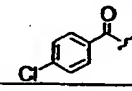
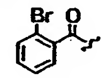
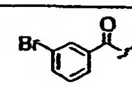
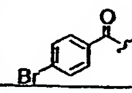
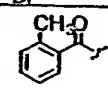
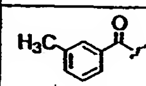
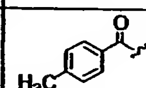
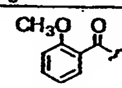
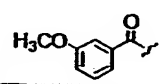
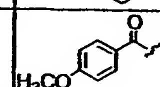
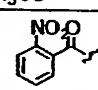
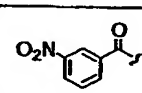
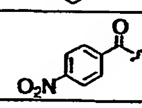
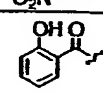
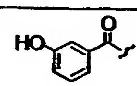
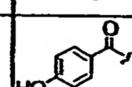
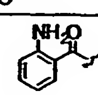
No.	R1	R2	R3	R4
YA0001	CH3-	H	H	CH3-
YA0002	CH3-	H	H	CH3CH2-
YA0003	CH3-	H	H	
YA0004	CH3-	H	H	
YA0005	CH3-	H	H	
YA0006	CH3-	H	H	
YA0007	CH3-	H	H	
YA0008	CH3-	H	H	
YA0009	CH3-	H	H	
YA0010	CH3-	H	H	
YA0011	CH3-	H	H	
YA0012	CH3-	H	H	
YA0013	CH3-	H	H	
YA0014	CH3-	H	H	
YA0015	CH3-	H	H	
YA0016	CH3-	H	H	
YA0017	CH3-	H	H	
YA0018	CH3-	H	H	
YA0019	CH3-	H	H	
YA0020	CH3-	H	H	
YA0021	CH3-	H	H	

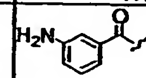
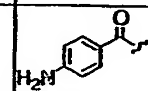
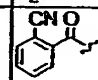
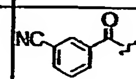
No.	R1	R2	R3	R4
YA0022	CH3–	H	H	
YA0023	CH3–	H	H	
YA0024	CH3–	H	H	
YA0025	CH3–	H	H	
YA0026	CH3–	H	H	
YA0027	CH3–	H	H	
YA0028	CH3–	H	H	
YA0029	CH3–	H	H	
YA0030	CH3–	H	H	
YA0031	CH3–	H	H	
YA0032	CH3–	H	H	
YA0033	CH3–	H	H	
YA0034	CH3–	H	H	
YA0035	CH3–	H	H	
YA0036	CH3–	H	H	
YA0037	CH3–	H	H	
YA0038	CH3–	H	H	
YA0039	CH3–	H	H	
YA0040	CH3–	H	H	
YA0041	CH3–	H	H	
YA0042	CH3–	H	H	

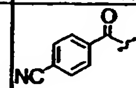
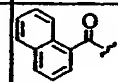
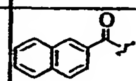
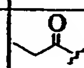
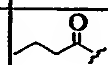
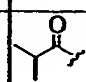
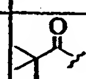
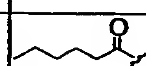
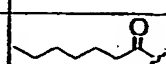
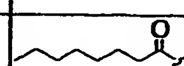
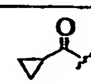
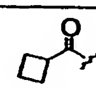
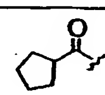
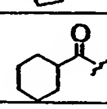
No.	R1	R2	R3	R4
YA0043	CH3-	H	H	
YA0044	CH3-	H	H	
YA0045	CH3-	H	H	
YA0046	CH3-	H	H	
YA0047	CH3-	H	H	
YA0048	CH3-	H	H	
YA0049	CH3-	H	H	
YA0050	CH3-	H	H	
YA0051	CH3-	H	H	
YA0052	CH3-	H	H	
YA0053	CH3-	H	H	
YA0054	CH3-	H	H	
YA0055	CH3-	H	H	
YA0056	CH3-	H	H	
YA0057	CH3-	H	H	
YA0058	CH3-	H	H	
YA0059	CH3-	H	H	
YA0060	CH3-	H	H	
YA0061	CH3-	H	H	
YA0062	CH3-	H	H	
YA0063	CH3-	H	H	

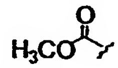
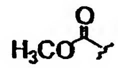
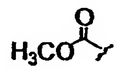
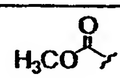
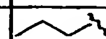
No.	R1	R2	R3	R4
YA0064	CH3-	H	H	
YA0065	CH3-	H	H	
YA0066	CH3-	H	H	
YA0067	CH3-	H	H	
YA0068	CH3-	H	H	
YA0069	CH3-	H	H	
YA0070	CH3-	H	H	
YA0071	CH3-	H	H	
YA0072	CH3-	H	H	
YA0073	CH3-	H	H	
YA0074	CH3-	H	H	
YA0075	CH3-	H	H	
YA0076	CH3-	H	H	
YA0077	CH3-	H	H	
YA0078	CH3-	H	H	
YA0079	CH3-	H	H	
YA0080	CH3-	H	H	

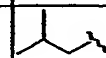
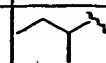
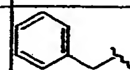
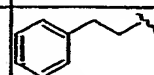
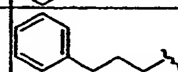
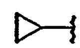
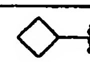
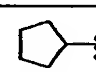
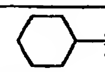
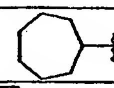
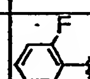
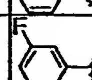
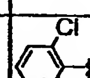
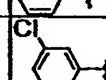
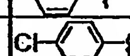
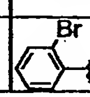
No.	R1	R2	R3	R4
YA0081	CH3-	H	H	
YA0082	CH3-	H	H	
YA0083	CH3-	H	H	
YA0084	CH3-	H	H	

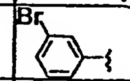
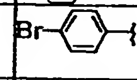
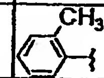
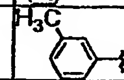
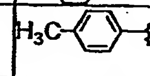
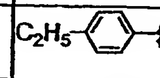
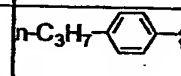
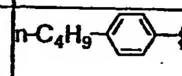
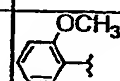
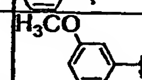
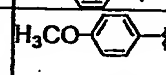
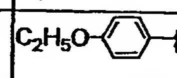
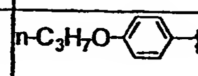
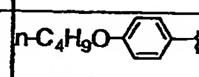
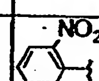
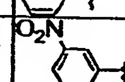
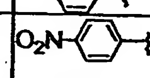
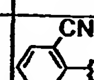
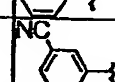
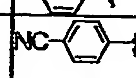
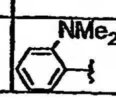
No.	R1	R2	R3	R4
YA0085	CH3-	H	H	
YA0086	CH3-	H	H	
YA0087	CH3-	H	H	
YA0088	CH3-	H	H	
YA0089	CH3-	H	H	
YA0090	CH3-	H	H	
YA0091	CH3-	H	H	
YA0092	CH3-	H	H	
YA0093	CH3-	H	H	
YA0094	CH3-	H	H	
YA0095	CH3-	H	H	
YA0096	CH3-	H	H	
YA0097	CH3-	H	H	
YA0098	CH3-	H	H	
YA0099	CH3-	H	H	
YA0100	CH3-	H	H	
YA0101	CH3-	H	H	

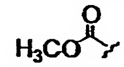
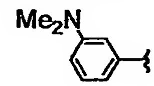
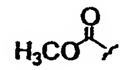
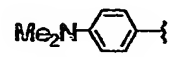
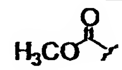
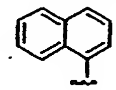
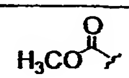
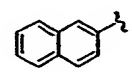
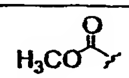
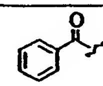
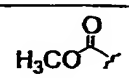
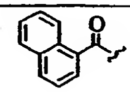
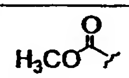
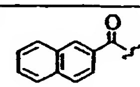
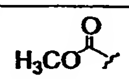
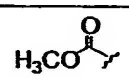
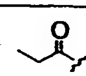
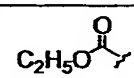
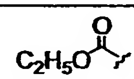
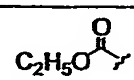
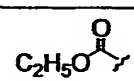
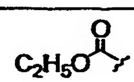
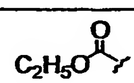
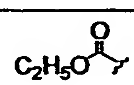
No.	R1	R2	R3	R4
YA0102	CH3-	H	H	
YA0103	CH3-	H	H	
YA0104	CH3-	H	H	
YA0105	CH3-	H	H	

No.	R1	R2	R3	R4
YA0106	CH3-	H	H	
YA0107	CH3-	H	H	
YA0108	CH3-	H	H	
YA0109	CH3-	H	H	
YA0110	CH3-	H	H	
YA0111	CH3-	H	H	
YA0112	CH3-	H	H	
YA0113	CH3-	H	H	
YA0114	CH3-	H	H	
YA0115	CH3-	H	H	
YA0116	CH3-	H	H	
YA0117	CH3-	H	H	
YA0118	CH3-	H	H	
YA0119	CH3-	H	H	
YA0120	CH3-	H	H	
YA0121	CH3-	H	H	
YA0122	CH3-	H	H	

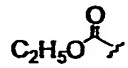
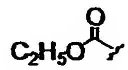
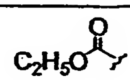
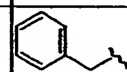
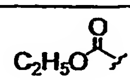
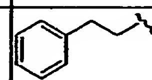
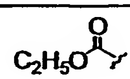
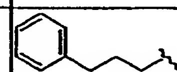
No.	R1	R2	R3	R4
YA0123	CH3–		H	H
YA0124	CH3–		H	CH3–
YA0125	CH3–		H	CH3CH2–
YA0126	CH3–		H	

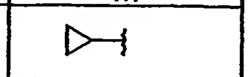
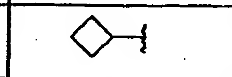
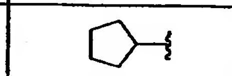
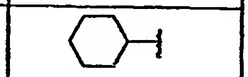
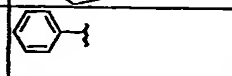
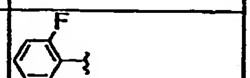
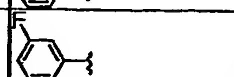
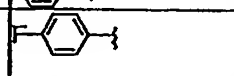
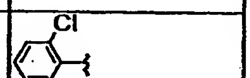
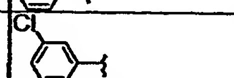
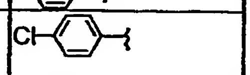
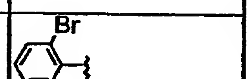
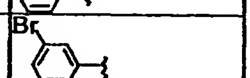
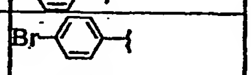
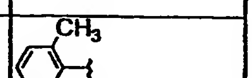
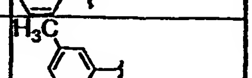
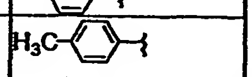
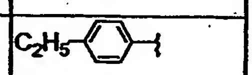
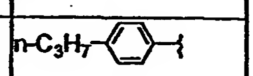
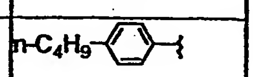
No.	R1	R2	R3	R4
YA0127	CH3-	O H_3CO	H	
YA0128	CH3-	O H_3CO	H	
YA0129	CH3-	O H_3CO	H	
YA0130	CH3-	O H_3CO	H	
YA0131	CH3-	O H_3CO	H	
YA0132	CH3-	O H_3CO	H	
YA0133	CH3-	O H_3CO	H	
YA0134	CH3-	O H_3CO	H	
YA0135	CH3-	O H_3CO	H	
YA0136	CH3-	O H_3CO	H	
YA0137	CH3-	O H_3CO	H	
YA0138	CH3-	O H_3CO	H	
YA0139	CH3-	O H_3CO	H	
YA0140	CH3-	O H_3CO	H	
YA0141	CH3-	O H_3CO	H	
YA0142	CH3-	O H_3CO	H	
YA0143	CH3-	O H_3CO	H	
YA0144	CH3-	O H_3CO	H	
YA0145	CH3-	O H_3CO	H	
YA0146	CH3-	O H_3CO	H	
YA0147	CH3-	O H_3CO	H	

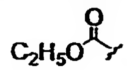
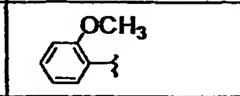
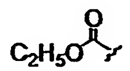
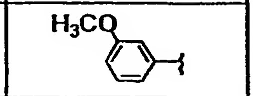
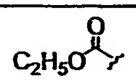
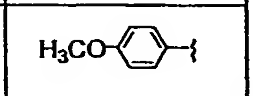
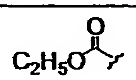
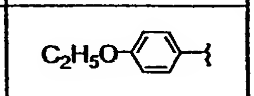
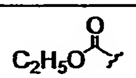
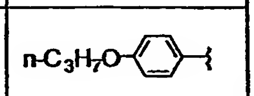
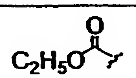
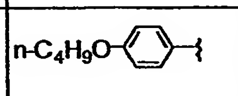
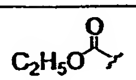
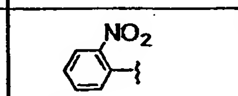
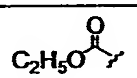
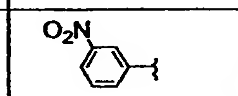
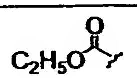
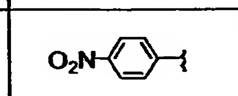
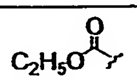
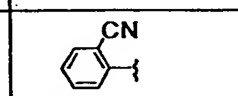
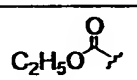
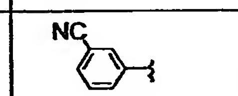
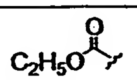
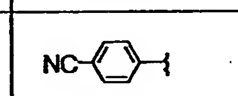
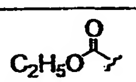
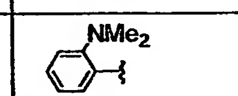
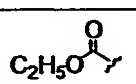
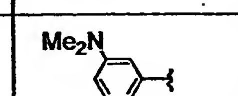
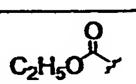
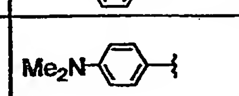
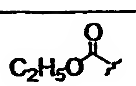
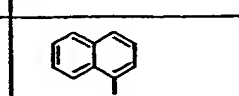
No.	R1	R2	R3	R4
YA0148	CH3–	H_3CO–C(=O)–	H	
YA0149	CH3–	H_3CO–C(=O)–	H	
YA0150	CH3–	H_3CO–C(=O)–	H	
YA0151	CH3–	H_3CO–C(=O)–	H	
YA0152	CH3–	H_3CO–C(=O)–	H	
YA0153	CH3–	H_3CO–C(=O)–	H	
YA0154	CH3–	H_3CO–C(=O)–	H	
YA0155	CH3–	H_3CO–C(=O)–	H	
YA0156	CH3–	H_3CO–C(=O)–	H	
YA0157	CH3–	H_3CO–C(=O)–	H	
YA0158	CH3–	H_3CO–C(=O)–	H	
YA0159	CH3–	H_3CO–C(=O)–	H	
YA0160	CH3–	H_3CO–C(=O)–	H	
YA0161	CH3–	H_3CO–C(=O)–	H	
YA0162	CH3–	H_3CO–C(=O)–	H	
YA0163	CH3–	H_3CO–C(=O)–	H	
YA0164	CH3–	H_3CO–C(=O)–	H	
YA0165	CH3–	H_3CO–C(=O)–	H	
YA0166	CH3–	H_3CO–C(=O)–	H	
YA0167	CH3–	H_3CO–C(=O)–	H	
YA0168	CH3–	H_3CO–C(=O)–	H	

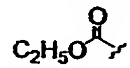
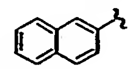
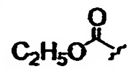
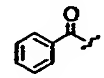
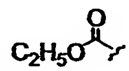
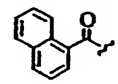
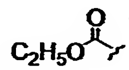
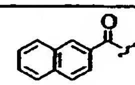
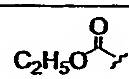
No.	R1	R2	R3	R4
YA0169	CH3-		H	
YA0170	CH3-		H	
YA0171	CH3-		H	
YA0172	CH3-		H	
YA0173	CH3-		H	
YA0174	CH3-		H	
YA0175	CH3-		H	
YA0176	CH3-		H	
YA0177	CH3-		H	
YA0178	CH3-		H	H
YA0179	CH3-		H	CH3-
YA0180	CH3-		H	CH3CH2-
YA0181	CH3-		H	
YA0182	CH3-		H	
YA0183	CH3-		H	
YA0184	CH3-		H	

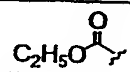
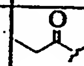
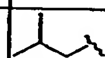
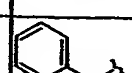
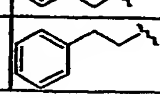
SUBSTITUTE SHEET (RULE 26)

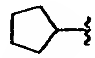
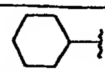
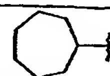
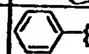
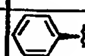
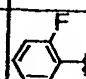
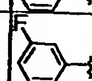
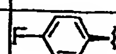
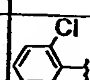
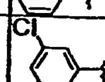
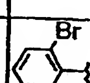
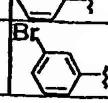
No.	R1	R2	R3	R4
YA0185	CH3-		H	
YA0186	CH3-		H	
YA0187	CH3-		H	
YA0188	CH3-		H	
YA0189	CH3-		H	

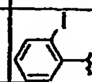
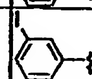
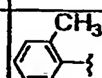
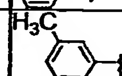
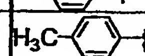
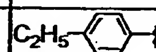
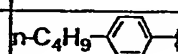
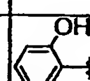
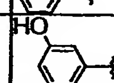
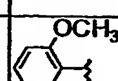
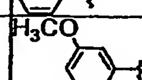
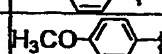
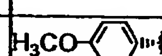
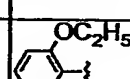
No.	R1	R2	R3	R4
YA0190	CH3–	$C_2H_5OC(=O)-$	H	
YA0191	CH3–	$C_2H_5OC(=O)-$	H	
YA0192	CH3–	$C_2H_5OC(=O)-$	H	
YA0193	CH3–	$C_2H_5OC(=O)-$	H	
YA0194	CH3–	$C_2H_5OC(=O)-$	H	
YA0195	CH3–	$C_2H_5OC(=O)-$	H	
YA0196	CH3–	$C_2H_5OC(=O)-$	H	
YA0197	CH3–	$C_2H_5OC(=O)-$	H	
YA0198	CH3–	$C_2H_5OC(=O)-$	H	
YA0199	CH3–	$C_2H_5OC(=O)-$	H	
YA0200	CH3–	$C_2H_5OC(=O)-$	H	
YA0201	CH3–	$C_2H_5OC(=O)-$	H	
YA0202	CH3–	$C_2H_5OC(=O)-$	H	
YA0203	CH3–	$C_2H_5OC(=O)-$	H	
YA0204	CH3–	$C_2H_5OC(=O)-$	H	
YA0205	CH3–	$C_2H_5OC(=O)-$	H	
YA0206	CH3–	$C_2H_5OC(=O)-$	H	
YA0207	CH3–	$C_2H_5OC(=O)-$	H	
YA0208	CH3–	$C_2H_5OC(=O)-$	H	
YA0209	CH3–	$C_2H_5OC(=O)-$	H	
YA0210	CH3–	$C_2H_5OC(=O)-$	H	

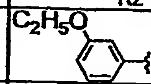
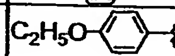
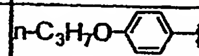
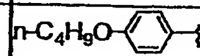
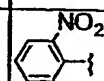
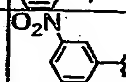
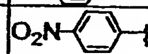
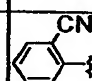
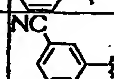
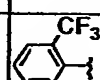
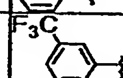
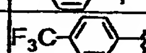
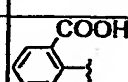
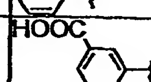
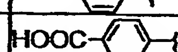
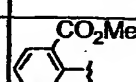
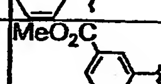
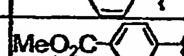
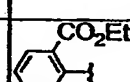
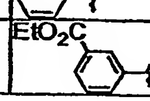
No.	R1	R2	R3	R4
YA0211	CH3–		H	
YA0212	CH3–		H	
YA0213	CH3–		H	
YA0214	CH3–		H	
YA0215	CH3–		H	
YA0216	CH3–		H	
YA0217	CH3–		H	
YA0218	CH3–		H	
YA0219	CH3–		H	
YA0220	CH3–		H	
YA0221	CH3–		H	
YA0222	CH3–		H	
YA0223	CH3–		H	
YA0224	CH3–		H	
YA0225	CH3–		H	
YA0226	CH3–		H	

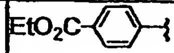
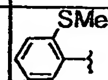
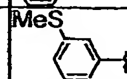
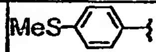
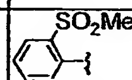
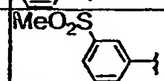
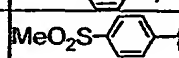
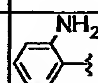
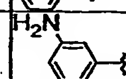
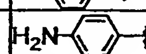
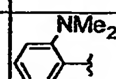
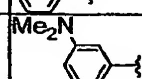
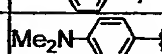
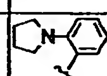
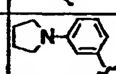
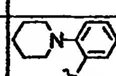
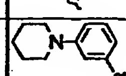
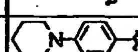
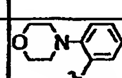
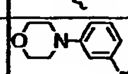
No.	R1	R2	R3	R4
YA0227	CH3–		H	
YA0228	CH3–		H	
YA0229	CH3–		H	
YA0230	CH3–		H	
YA0231	CH3–		H	

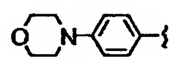
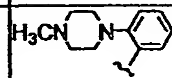
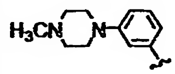
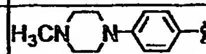
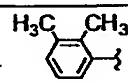
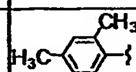
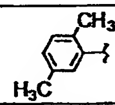
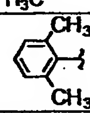
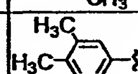
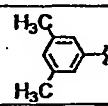
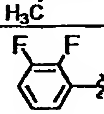
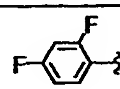
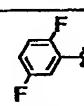
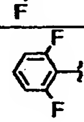
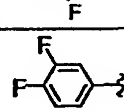
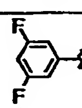
No.	R1	R2	R3	R4
YA0232	CH3–		H	
YA0233	CH3–	CH3–	H	H
YA0234	CH3–	CH3CH2–	H	H
YA0235	CH3–		H	H
YA0236	CH3–		H	H
YA0237	CH3–		H	H
YA0238	CH3–		H	H
YA0239	CH3–		H	H
YA0240	CH3–		H	H
YA0241	CH3–		H	H
YA0242	CH3–		H	H
YA0243	CH3–		H	H
YA0244	CH3–		H	H
YA0245	CH3–		H	H
YA0246	CH3–		H	H
YA0247	CH3–		H	H
YA0248	CH3–		H	H
YA0249	CH3–		H	H
YA0250	CH3–		H	H
YA0251	CH3–		H	H
YA0252	CH3–		H	H

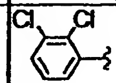
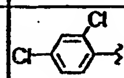
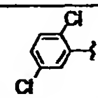
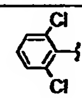
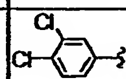
No.	R1	R2	R3	R4
YA0253	CH3-		H	H
YA0254	CH3-		H	H
YA0255	CH3-		H	H
YA0256	CH3-		H	H
YA0257	CH3-		H	H
YA0258	CH3-		H	H
YA0259	CH3-		H	H
YA0260	CH3-		H	H
YA0261	CH3-		H	H
YA0262	CH3-		H	H
YA0263	CH3-		H	H
YA0264	CH3-		H	H
YA0265	CH3-		H	H
YA0266	CH3-		H	H
YA0267	CH3-		H	H
YA0268	CH3-		H	H
YA0269	CH3-		H	H
YA0270	CH3-		H	H
YA0271	CH3-		H	H
YA0272	CH3-		H	H
YA0273	CH3-		H	H

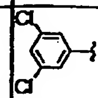
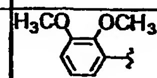
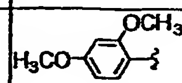
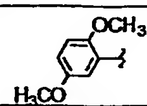
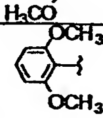
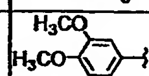
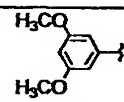
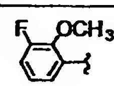
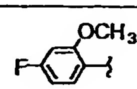
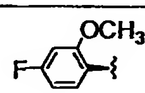
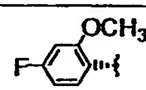
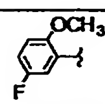
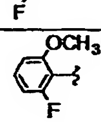
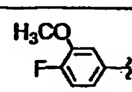
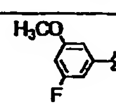
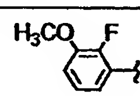
No.	R1	R2	R3	R4
YA0274	CH3-		H	H
YA0275	CH3-		H	H
YA0276	CH3-		H	H
YA0277	CH3-		H	H
YA0278	CH3-		H	H
YA0279	CH3-		H	H
YA0280	CH3-		H	H
YA0281	CH3-		H	H
YA0282	CH3-		H	H
YA0283	CH3-		H	H
YA0284	CH3-		H	H
YA0285	CH3-		H	H
YA0286	CH3-		H	H
YA0287	CH3-		H	H
YA0288	CH3-		H	H
YA0289	CH3-		H	H
YA0290	CH3-		H	H
YA0291	CH3-		H	H
YA0292	CH3-		H	H
YA0293	CH3-		H	H
YA0294	CH3-		H	H

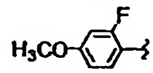
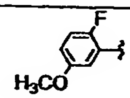
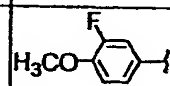
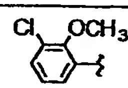
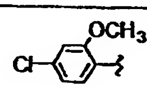
No.	R1	R2	R3	R4
YA0295	CH3–		H	H
YA0296	CH3–		H	H
YA0297	CH3–		H	H
YA0298	CH3–		H	H
YA0299	CH3–		H	H
YA0300	CH3–		H	H
YA0301	CH3–		H	H
YA0302	CH3–		H	H
YA0303	CH3–		H	H
YA0304	CH3–		H	H
YA0305	CH3–		H	H
YA0306	CH3–		H	H
YA0307	CH3–		H	H
YA0308	CH3–		H	H
YA0309	CH3–		H	H
YA0310	CH3–		H	H
YA0311	CH3–		H	H
YA0312	CH3–		H	H
YA0313	CH3–		H	H
YA0314	CH3–		H	H
YA0315	CH3–		H	H

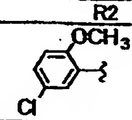
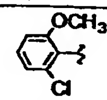
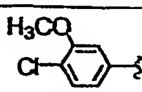
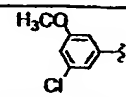
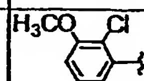
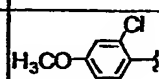
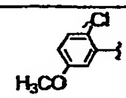
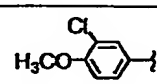
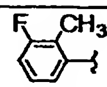
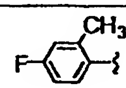
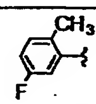
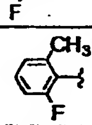
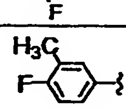
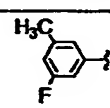
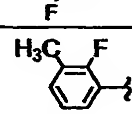
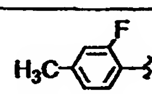
No.	R1	R2	R3	R4
YA0316	CH3-		H	H
YA0317	CH3-		H	H
YA0318	CH3-		H	H
YA0319	CH3-		H	H
YA0320	CH3-		H	H
YA0321	CH3-		H	H
YA0322	CH3-		H	H
YA0323	CH3-		H	H
YA0324	CH3-		H	H
YA0325	CH3-		H	H
YA0326	CH3-		H	H
YA0327	CH3-		H	H
YA0328	CH3-		H	H
YA0329	CH3-		H	H
YA0330	CH3-		H	H
YA0331	CH3-		H	H
YA0332	CH3-		H	H
YA0333	CH3-		H	H
YA0334	CH3-		H	H
YA0335	CH3-		H	H
YA0336	CH3-		H	H

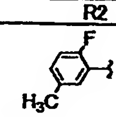
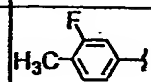
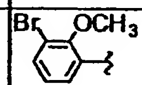
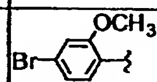
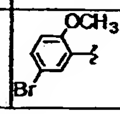
No.	R1	R2	R3	R4
YA0337	CH3−		H	H
YA0338	CH3−		H	H
YA0339	CH3−		H	H
YA0340	CH3−		H	H
YA0341	CH3−		H	H
YA0342	CH3−		H	H
YA0343	CH3−		H	H
YA0344	CH3−		H	H
YA0345	CH3−		H	H
YA0346	CH3−		H	H
YA0347	CH3−		H	H
YA0348	CH3−		H	H
YA0349	CH3−		H	H
YA0350	CH3−		H	H
YA0351	CH3−		H	H
YA0352	CH3−		H	H

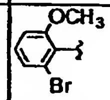
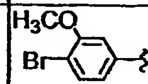
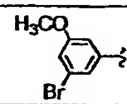
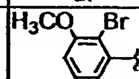
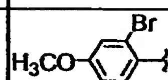
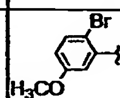
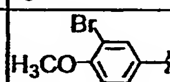
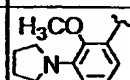
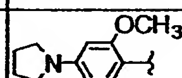
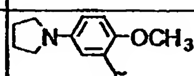
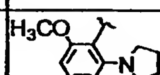
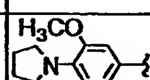
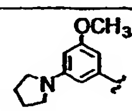
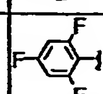
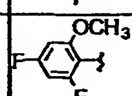
No.	R1	R2	R3	R4
YA0353	CH3-		H	H
YA0354	CH3-		H	H
YA0355	CH3-		H	H
YA0356	CH3-		H	H
YA0357	CH3-		H	H

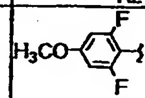
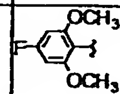
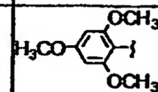
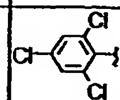
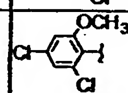
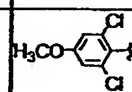
No.	R1	R2	R3	R4
YA0358	CH3-		H	H
YA0359	CH3-		H	H
YA0360	CH3-		H	H
YA0361	CH3-		H	H
YA0362	CH3-		H	H
YA0363	CH3-		H	H
YA0364	CH3-		H	H
YA0365	CH3-		H	H
YA0366	CH3-		H	H
YA0367	CH3-		H	H
YA0368	CH3-		H	H
YA0369	CH3-		H	H
YA0370	CH3-		H	H
YA0371	CH3-		H	H
YA0372	CH3-		H	H
YA0373	CH3-		H	H

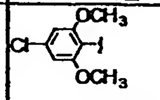
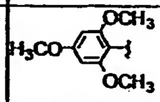
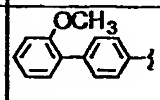
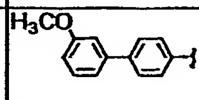
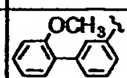
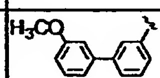
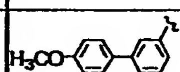
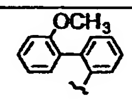
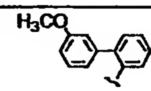
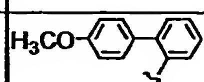
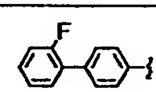
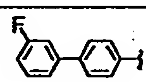
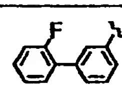
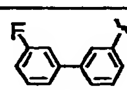
No.	R1	R2	R3	R4
YA0374	CH3–		H	H
YA0375	CH3–		H	H
YA0376	CH3–		H	H
YA0377	CH3–		H	H
YA0378	CH3–		H	H

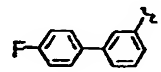
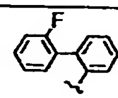
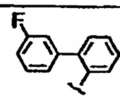
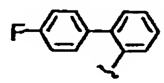
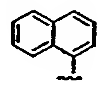
No.	R1	R2	R3	R4
YA0379	CH3-		H	H
YA0380	CH3-		H	H
YA0381	CH3-		H	H
YA0382	CH3-		H	H
YA0383	CH3-		H	H
YA0384	CH3-		H	H
YA0385	CH3-		H	H
YA0386	CH3-		H	H
YA0387	CH3-		H	H
YA0388	CH3-		H	H
YA0389	CH3-		H	H
YA0390	CH3-		H	H
YA0391	CH3-		H	H
YA0392	CH3-		H	H
YA0393	CH3-		H	H
YA0394	CH3-		H	H

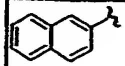
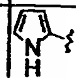
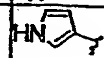
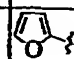
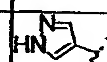
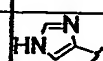
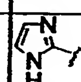
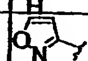
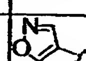
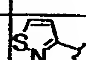
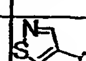
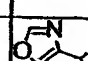
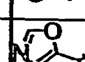
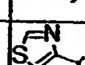
No.	R1	R2	R3	R4
YA0395	CH3-		H	H
YA0396	CH3-		H	H
YA0397	CH3-		H	H
YA0398	CH3-		H	H
YA0399	CH3-		H	H

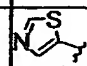
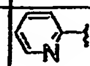
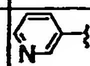
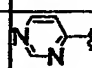
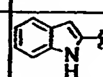
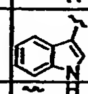
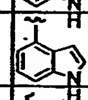
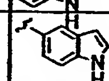
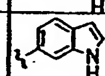
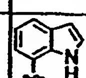
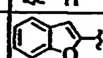
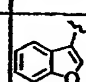
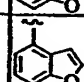
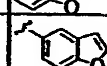
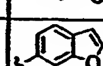
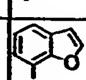
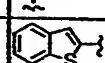
No.	R1	R2	R3	R4
YA0400	CH3-		H	H
YA0401	CH3-		H	H
YA0402	CH3-		H	H
YA0403	CH3-		H	H
YA0404	CH3-		H	H
YA0405	CH3-		H	H
YA0406	CH3-		H	H
YA0407	CH3-		H	H
YA0408	CH3-		H	H
YA0409	CH3-		H	H
YA0410	CH3-		H	H
YA0411	CH3-		H	H
YA0412	CH3-		H	H
YA0413	CH3-		H	H
YA0414	CH3-		H	H

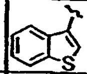
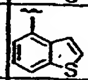
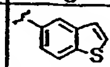
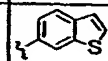
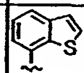
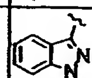
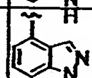
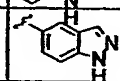
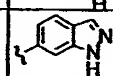
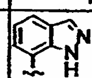
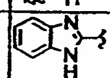
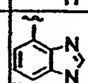
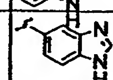
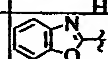
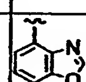
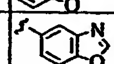
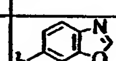
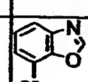
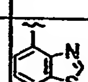
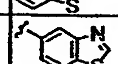
No.	R1	R2	R3	R4
YA0415	CH3-		H	H
YA0416	CH3-		H	H
YA0417	CH3-		H	H
YA0418	CH3-		H	H
YA0419	CH3-		H	H
YA0420	CH3-		H	H

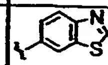
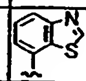
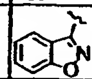
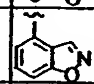
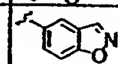
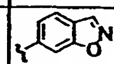
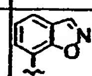
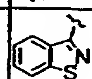
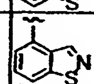
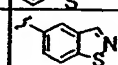
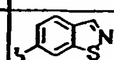
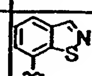
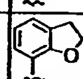
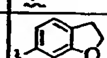
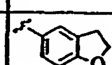
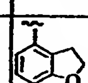
No.	R1	R2	R3	R4
YA0421	CH3-		H	H
YA0422	CH3-		H	H
YA0423	CH3-		H	H
YA0424	CH3-		H	H
YA0425	CH3-		H	H
YA0426	CH3-		H	H
YA0427	CH3-		H	H
YA0428	CH3-		H	H
YA0429	CH3-		H	H
YA0430	CH3-		H	H
YA0431	CH3-		H	H
YA0432	CH3-		H	H
YA0433	CH3-		H	H
YA0434	CH3-		H	H
YA0435	CH3-		H	H
YA0436	CH3-		H	H

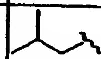
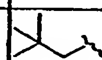
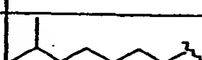
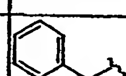
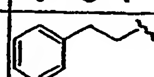
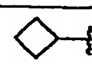
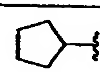
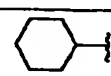
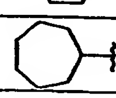
No.	R1	R2	R3	R4
YA0437	CH3-		H	H
YA0438	CH3-		H	H
YA0439	CH3-		H	H
YA0440	CH3-		H	H
YA0441	CH3-		H	H

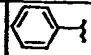
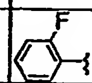
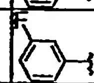
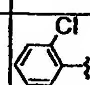
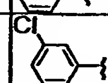
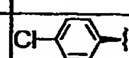
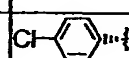
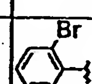
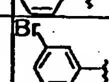
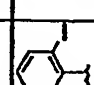
No.	R1	R2	R3	R4
YA0442	CH3-		H	H
YA0443	CH3-		H	H
YA0444	CH3-		H	H
YA0445	CH3-		H	H
YA0446	CH3-		H	H
YA0447	CH3-		H	H
YA0448	CH3-		H	H
YA0449	CH3-		H	H
YA0450	CH3-		H	H
YA0451	CH3-		H	H
YA0452	CH3-		H	H
YA0453	CH3-		H	H
YA0454	CH3-		H	H
YA0455	CH3-		H	H
YA0456	CH3-		H	H
YA0457	CH3-		H	H
YA0458	CH3-		H	H
YA0459	CH3-		H	H
YA0460	CH3-		H	H
YA0461	CH3-		H	H
YA0462	CH3-		H	H

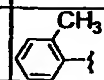
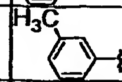
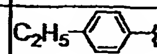
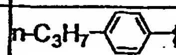
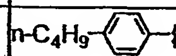
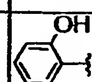
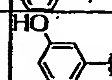
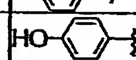
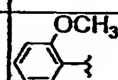
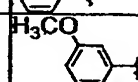
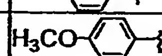
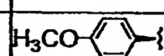
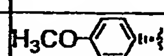
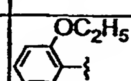
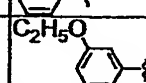
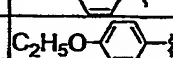
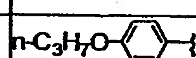
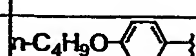
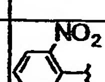
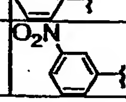
No.	R1	R2	R3	R4
YA0463	CH3-		H	H
YA0464	CH3-		H	H
YA0465	CH3-		H	H
YA0466	CH3-		H	H
YA0467	CH3-		H	H
YA0468	CH3-		H	H
YA0469	CH3-		H	H
YA0470	CH3-		H	H
YA0471	CH3-		H	H
YA0472	CH3-		H	H
YA0473	CH3-		H	H
YA0474	CH3-		H	H
YA0475	CH3-		H	H
YA0476	CH3-		H	H
YA0477	CH3-		H	H
YA0478	CH3-		H	H
YA0479	CH3-		H	H
YA0480	CH3-		H	H
YA0481	CH3-		H	H
YA0482	CH3-		H	H
YA0483	CH3-		H	H

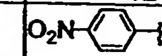
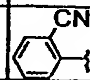
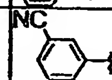
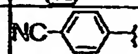
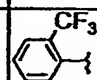
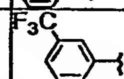
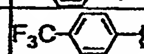
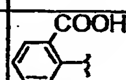
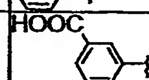
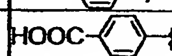
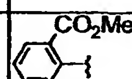
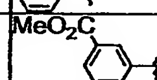
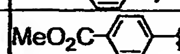
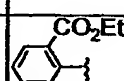
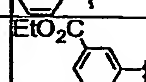
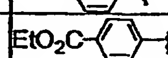
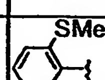
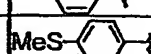
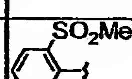
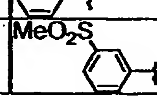
No.	R1	R2	R3	R4
YA0484	CH3-		H	H
YA0485	CH3-		H	H
YA0486	CH3-		H	H
YA0487	CH3-		H	H
YA0488	CH3-		H	H
YA0489	CH3-		H	H
YA0490	CH3-		H	H
YA0491	CH3-		H	H
YA0492	CH3-		H	H
YA0493	CH3-		H	H
YA0494	CH3-		H	H
YA0495	CH3-		H	H
YA0496	CH3-		H	H
YA0497	CH3-		H	H
YA0498	CH3-		H	H
YA0499	CH3-		H	H
YA0500	CH3-		H	H
YA0501	CH3-		H	H
YA0502	CH3-		H	H
YA0503	CH3-		H	H
YA0504	CH3-		H	H

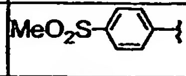
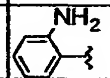
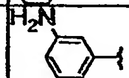
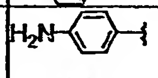
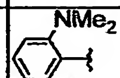
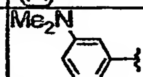
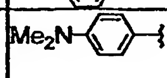
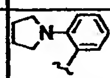
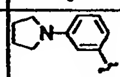
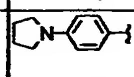
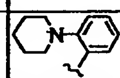
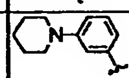
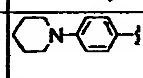
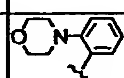
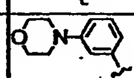
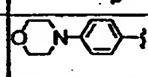
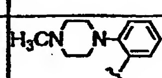
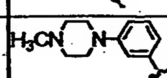
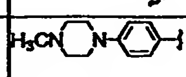
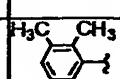
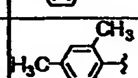
No.	R1	R2	R3	R4
YA0505	CH3–		H	H
YA0506	CH3–		H	H
YA0507	CH3–		H	H
YA0508	CH3–		H	H
YA0509	CH3–		H	H
YA0510	CH3–		H	H
YA0511	CH3–		H	H
YA0512	CH3–		H	H
YA0513	CH3–		H	H
YA0514	CH3–		H	H
YA0515	CH3–		H	H
YA0516	CH3–		H	H
YA0517	CH3–		H	H
YA0518	CH3–		H	H
YA0519	CH3–		H	H
YA0520	CH3–		H	H
YA0521	CH3–	CH3–	H	CH3
YA0522	CH3–	CH3CH2–	H	CH3
YA0523	CH3–		H	CH3
YA0524	CH3–		H	CH3
YA0525	CH3–		H	CH3

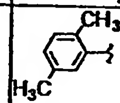
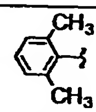
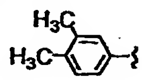
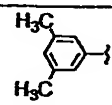
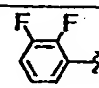
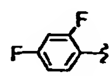
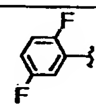
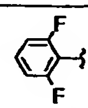
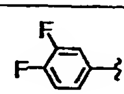
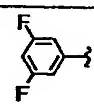
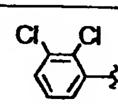
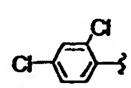
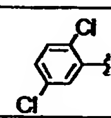
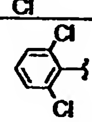
No.	R1	R2	R3	R4
YA0526	CH3-		H	CH3
YA0527	CH3-		H	CH3
YA0528	CH3-		H	CH3
YA0529	CH3-		H	CH3
YA0530	CH3-		H	CH3
YA0531	CH3-		H	CH3
YA0532	CH3-		H	CH3
YA0533	CH3-		H	CH3
YA0534	CH3-		H	CH3
YA0535	CH3-		H	CH3
YA0536	CH3-		H	CH3
YA0537	CH3-		H	CH3
YA0538	CH3-		H	CH3
YA0539	CH3-		H	CH3
YA0540	CH3-		H	CH3
YA0541	CH3-		H	CH3
YA0542	CH3-		H	CH3
YA0543	CH3-		H	CH3
YA0544	CH3-		H	CH3
YA0545	CH3-		H	CH3
YA0546	CH3-		H	CH3

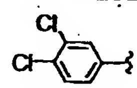
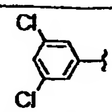
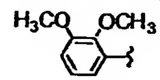
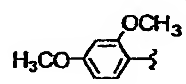
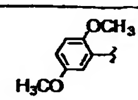
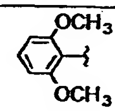
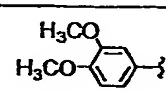
No.	R1	R2	R3	R4
YA0547	CH3-		H	CH3
YA0548	CH3-		H	CH3
YA0549	CH3-		H	CH3
YA0550	CH3-		H	CH3
YA0551	CH3-		H	CH3
YA0552	CH3-		H	CH3
YA0553	CH3-		H	CH3
YA0554	CH3-		H	CH3
YA0555	CH3-		H	CH3
YA0556	CH3-		H	CH3
YA0557	CH3-		H	CH3
YA0558	CH3-		H	CH3
YA0559	CH3-		H	CH3
YA0560	CH3-		H	CH3
YA0561	CH3-		H	CH3
YA0562	CH3-		H	CH3
YA0563	CH3-		H	CH3
YA0564	CH3-		H	CH3
YA0565	CH3-		H	CH3
YA0566	CH3-		H	CH3
YA0567	CH3-		H	CH3

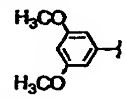
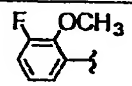
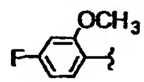
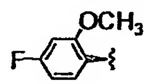
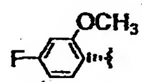
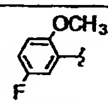
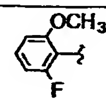
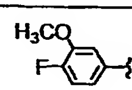
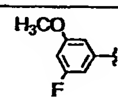
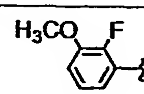
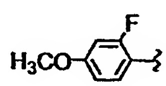
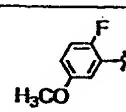
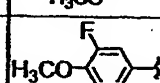
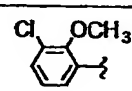
No.	R1	R2	R3	R4
YA0568	CH3–		H	CH3
YA0569	CH3–		H	CH3
YA0570	CH3–		H	CH3
YA0571	CH3–		H	CH3
YA0572	CH3–		H	CH3
YA0573	CH3–		H	CH3
YA0574	CH3–		H	CH3
YA0575	CH3–		H	CH3
YA0576	CH3–		H	CH3
YA0577	CH3–		H	CH3
YA0578	CH3–		H	CH3
YA0579	CH3–		H	CH3
YA0580	CH3–		H	CH3
YA0581	CH3–		H	CH3
YA0582	CH3–		H	CH3
YA0583	CH3–		H	CH3
YA0584	CH3–		H	CH3
YA0585	CH3–		H	CH3
YA0586	CH3–		H	CH3
YA0587	CH3–		H	CH3
YA0588	CH3–		H	CH3

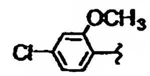
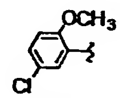
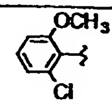
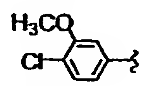
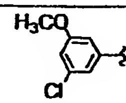
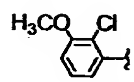
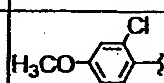
No.	R1	R2	R3	R4
YA0589	CH3-		H	CH3
YA0590	CH3-		H	CH3
YA0591	CH3-		H	CH3
YA0592	CH3-		H	CH3
YA0593	CH3-		H	CH3
YA0594	CH3-		H	CH3
YA0595	CH3-		H	CH3
YA0596	CH3-		H	CH3
YA0597	CH3-		H	CH3
YA0598	CH3-		H	CH3
YA0599	CH3-		H	CH3
YA0600	CH3-		H	CH3
YA0601	CH3-		H	CH3
YA0602	CH3-		H	CH3
YA0603	CH3-		H	CH3
YA0604	CH3-		H	CH3
YA0605	CH3-		H	CH3
YA0606	CH3-		H	CH3
YA0607	CH3-		H	CH3
YA0608	CH3-		H	CH3
YA0609	CH3-		H	CH3

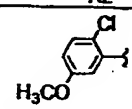
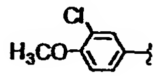
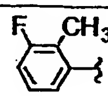
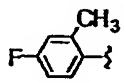
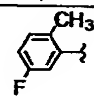
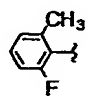
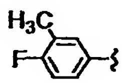
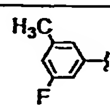
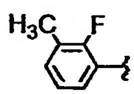
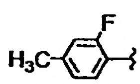
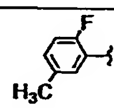
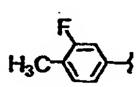
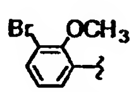
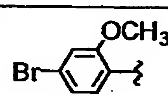
No.	R1	R2	R3	R4
YA0610	CH3-		H	CH3
YA0611	CH3-		H	CH3
YA0612	CH3-		H	CH3
YA0613	CH3-		H	CH3
YA0614	CH3-		H	CH3
YA0615	CH3-		H	CH3
YA0616	CH3-		H	CH3
YA0617	CH3-		H	CH3
YA0618	CH3-		H	CH3
YA0619	CH3-		H	CH3
YA0620	CH3-		H	CH3
YA0621	CH3-		H	CH3
YA0622	CH3-		H	CH3
YA0623	CH3-		H	CH3
YA0624	CH3-		H	CH3
YA0625	CH3-		H	CH3
YA0626	CH3-		H	CH3
YA0627	CH3-		H	CH3
YA0628	CH3-		H	CH3
YA0629	CH3-		H	CH3
YA0630	CH3-		H	CH3

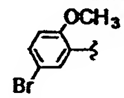
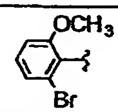
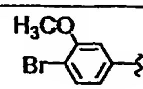
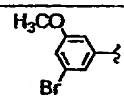
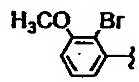
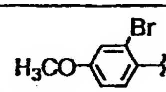
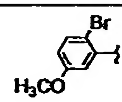
No.	R1	R2	R3	R4
YA0631	CH3-		H	CH3
YA0632	CH3-		H	CH3
YA0633	CH3-		H	CH3
YA0634	CH3-		H	CH3
YA0635	CH3-		H	CH3
YA0636	CH3-		H	CH3
YA0637	CH3-		H	CH3
YA0638	CH3-		H	CH3
YA0639	CH3-		H	CH3
YA0640	CH3-		H	CH3
YA0641	CH3-		H	CH3
YA0642	CH3-		H	CH3
YA0643	CH3-		H	CH3
YA0644	CH3-		H	CH3

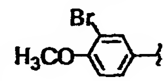
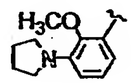
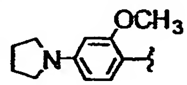
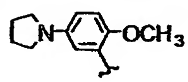
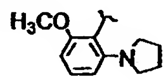
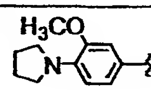
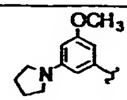
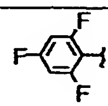
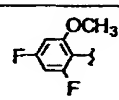
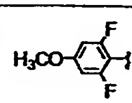
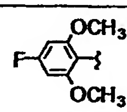
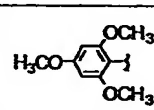
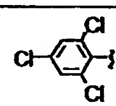
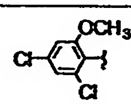
No.	R1	R2	R3	R4
YA0645	CH3-		H	CH3
YA0646	CH3-		H	CH3
YA0647	CH3-		H	CH3
YA0648	CH3-		H	CH3
YA0649	CH3-		H	CH3
YA0650	CH3-		H	CH3
YA0651	CH3-		H	CH3

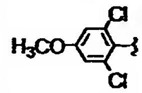
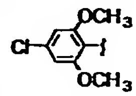
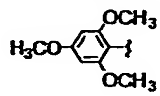
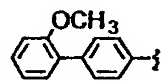
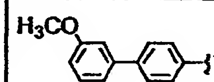
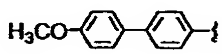
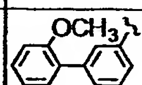
No.	R1	R2	R3	R4
YA0652	CH3-		H	CH3
YA0653	CH3-		H	CH3
YA0654	CH3-		H	CH3
YA0655	CH3-		H	CH3
YA0656	CH3-		H	CH3
YA0657	CH3-		H	CH3
YA0658	CH3-		H	CH3
YA0659	CH3-		H	CH3
YA0660	CH3-		H	CH3
YA0661	CH3-		H	CH3
YA0662	CH3-		H	CH3
YA0663	CH3-		H	CH3
YA0664	CH3-		H	CH3
YA0665	CH3-		H	CH3

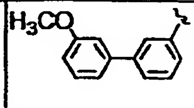
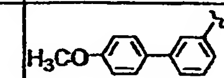
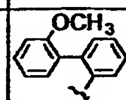
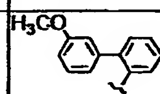
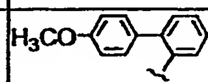
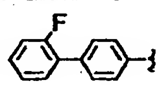
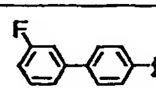
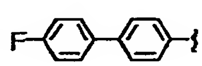
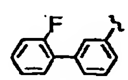
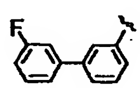
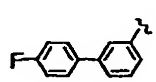
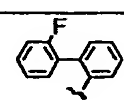
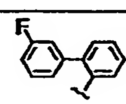
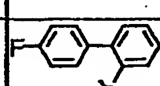
No.	R1	R2	R3	R4
YA0666	CH3-		H	CH3
YA0667	CH3-		H	CH3
YA0668	CH3-		H	CH3
YA0669	CH3-		H	CH3
YA0670	CH3-		H	CH3
YA0671	CH3-		H	CH3
YA0672	CH3-		H	CH3

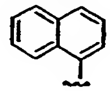
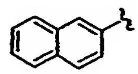
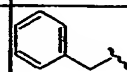
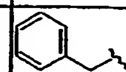
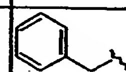
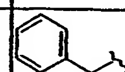
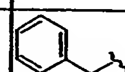
No.	R1	R2	R3	R4
YA0673	CH3–		H	CH3
YA0674	CH3–		H	CH3
YA0675	CH3–		H	CH3
YA0676	CH3–		H	CH3
YA0677	CH3–		H	CH3
YA0678	CH3–		H	CH3
YA0679	CH3–		H	CH3
YA0680	CH3–		H	CH3
YA0681	CH3–		H	CH3
YA0682	CH3–		H	CH3
YA0683	CH3–		H	CH3
YA0684	CH3–		H	CH3
YA0685	CH3–		H	CH3
YA0686	CH3–		H	CH3

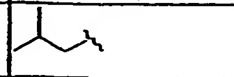
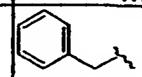
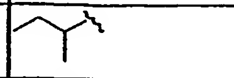
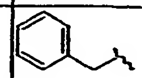
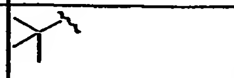
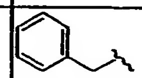
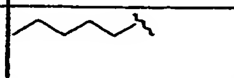
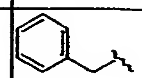
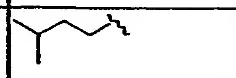
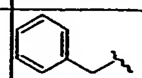
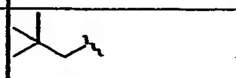
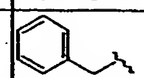
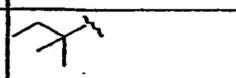
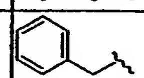
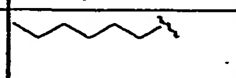
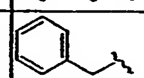
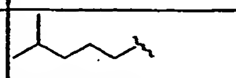
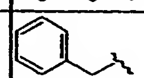
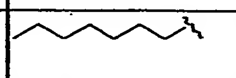
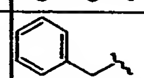
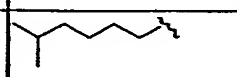
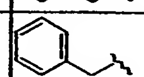
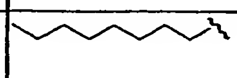
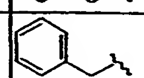
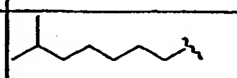
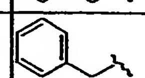
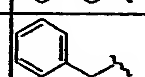
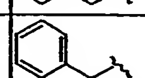
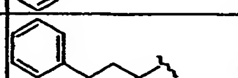
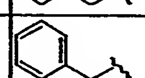
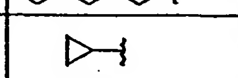
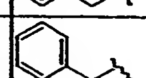
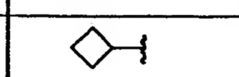
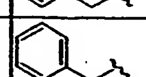
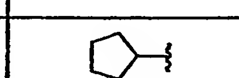
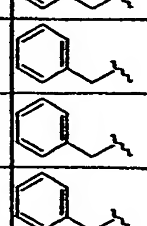
No.	R1	R2	R3	R4
YA0687	CH3-		H	CH3
YA0688	CH3-		H	CH3
YA0689	CH3-		H	CH3
YA0690	CH3-		H	CH3
YA0691	CH3-		H	CH3
YA0692	CH3-		H	CH3
YA0693	CH3-		H	CH3

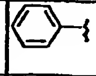
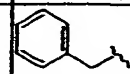
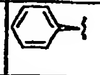
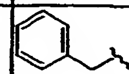
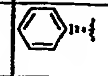
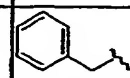
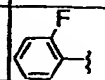
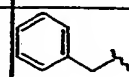
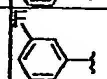
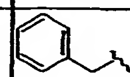
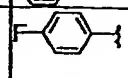
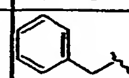
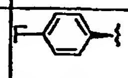
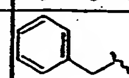
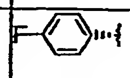
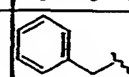
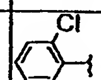
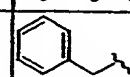
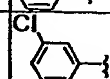
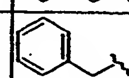
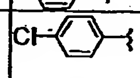
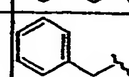
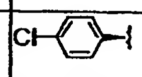
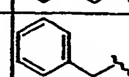
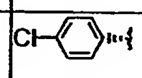
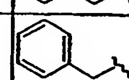
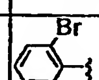
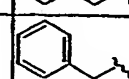
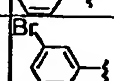
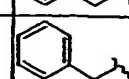
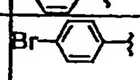
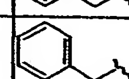
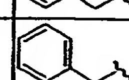
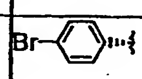
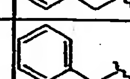
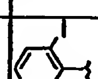
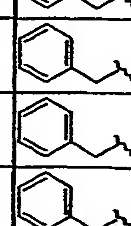
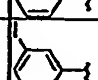
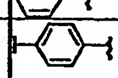
No.	R1	R2	R3	R4
YA0694	CH3-		H	CH3
YA0695	CH3-		H	CH3
YA0696	CH3-		H	CH3
YA0697	CH3-		H	CH3
YA0698	CH3-		H	CH3
YA0699	CH3-		H	CH3
YA0700	CH3-		H	CH3
YA0701	CH3-		H	CH3
YA0702	CH3-		H	CH3
YA0703	CH3-		H	CH3
YA0704	CH3-		H	CH3
YA0705	CH3-		H	CH3
YA0706	CH3-		H	CH3
YA0707	CH3-		H	CH3

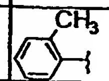
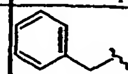
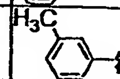
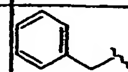
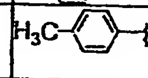
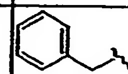
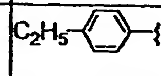
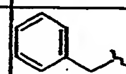
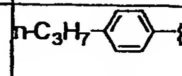
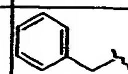
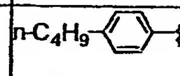
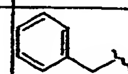
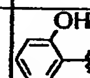
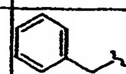
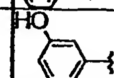
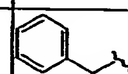
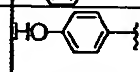
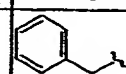
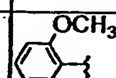
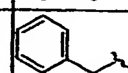
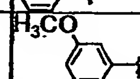
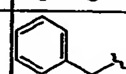
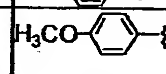
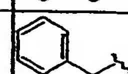
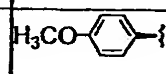
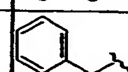
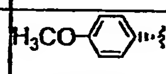
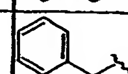
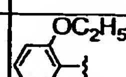
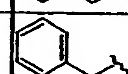
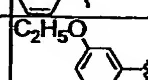
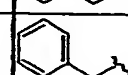
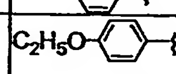
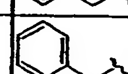
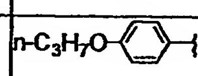
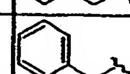
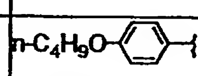
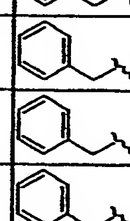
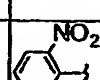
No.	R1	R2	R3	R4
YA0708	CH3−		H	CH3
YA0709	CH3−		H	CH3
YA0710	CH3−		H	CH3
YA0711	CH3−		H	CH3
YA0712	CH3−		H	CH3
YA0713	CH3−		H	CH3
YA0714	CH3−		H	CH3

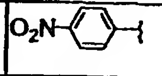
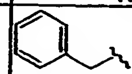
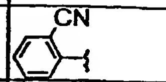
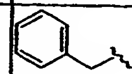
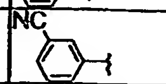
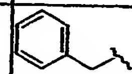
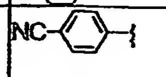
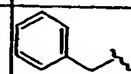
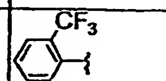
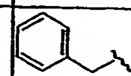
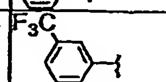
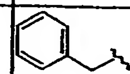
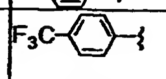
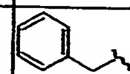
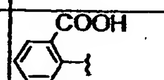
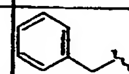
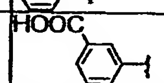
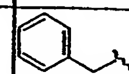
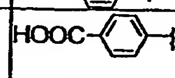
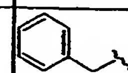
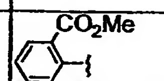
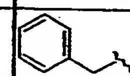
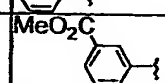
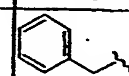
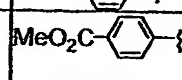
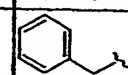
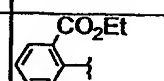
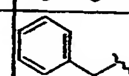
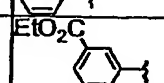
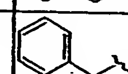
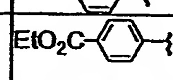
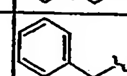
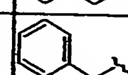
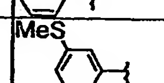
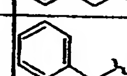
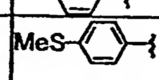
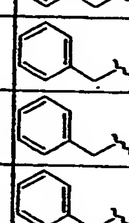
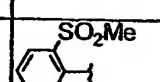
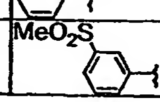
No.	R1	R2	R3	R4
YA0715	CH3-		H	CH3
YA0716	CH3-		H	CH3
YA0717	CH3-		H	CH3
YA0718	CH3-		H	CH3
YA0719	CH3-		H	CH3
YA0720	CH3-		H	CH3
YA0721	CH3-		H	CH3
YA0722	CH3-		H	CH3
YA0723	CH3-		H	CH3
YA0724	CH3-		H	CH3
YA0725	CH3-		H	CH3
YA0726	CH3-		H	CH3
YA0727	CH3-		H	CH3
YA0728	CH3-		H	CH3

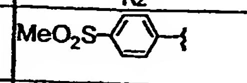
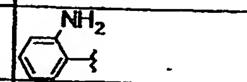
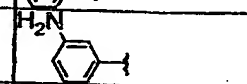
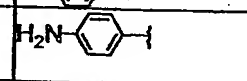
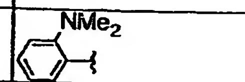
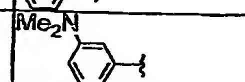
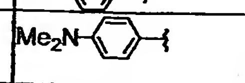
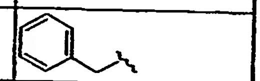
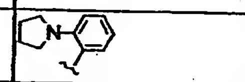
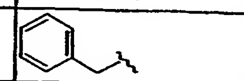
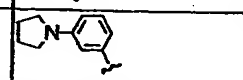
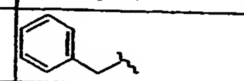
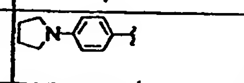
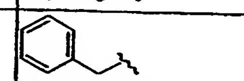
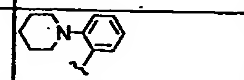
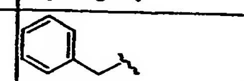
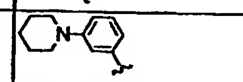
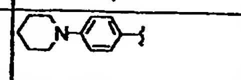
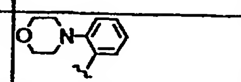
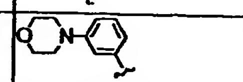
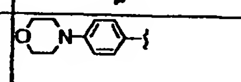
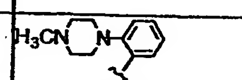
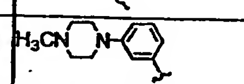
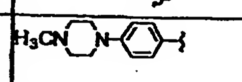
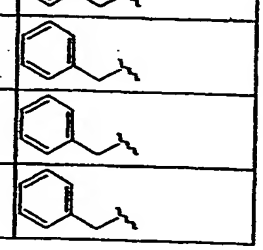
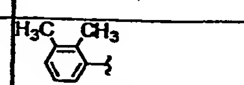
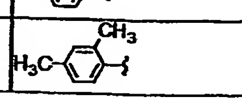
No.	R1	R2	R3	R4
YA0729	CH3-		H	CH3
YA0730	CH3-		H	CH3
YA0731	CH3-	CH3-	H	
YA0732	CH3-	CH3CH2-	H	
YA0733	CH3-		H	
YA0734	CH3-		H	
YA0735	CH3-		H	

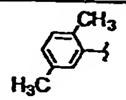
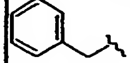
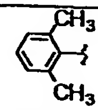
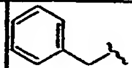
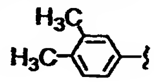
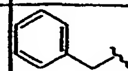
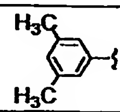
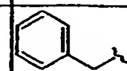
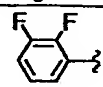
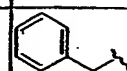
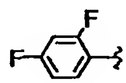
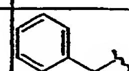
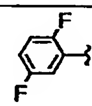
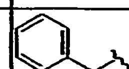
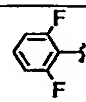
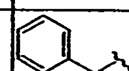
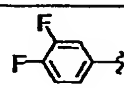
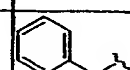
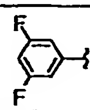
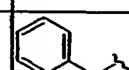
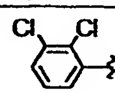
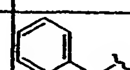
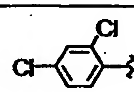
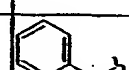
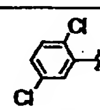
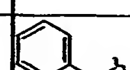
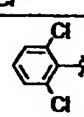
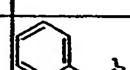
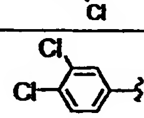
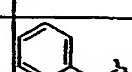
No.	R1	R2	R3	R4
YA0736	CH3-		H	
YA0737	CH3-		H	
YA0738	CH3-		H	
YA0739	CH3-		H	
YA0740	CH3-		H	
YA0741	CH3-		H	
YA0742	CH3-		H	
YA0743	CH3-		H	
YA0744	CH3-		H	
YA0745	CH3-		H	
YA0746	CH3-		H	
YA0747	CH3-		H	
YA0748	CH3-		H	
YA0749	CH3-		H	
YA0750	CH3-		H	
YA0751	CH3-		H	
YA0752	CH3-		H	
YA0753	CH3-		H	
YA0754	CH3-		H	
YA0755	CH3-		H	
YA0756	CH3-		H	

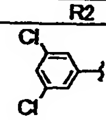
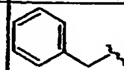
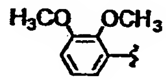
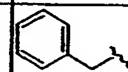
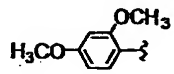
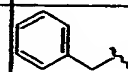
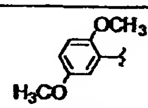
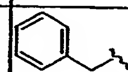
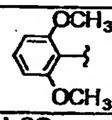
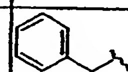
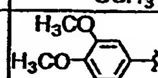
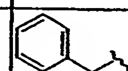
No.	R1	R2	R3	R4
YA0757	CH3-		H	
YA0758	CH3-		H	
YA0759	CH3-		H	
YA0760	CH3-		H	
YA0761	CH3-		H	
YA0762	CH3-		H	
YA0763	CH3-		H	
YA0764	CH3-		H	
YA0765	CH3-		H	
YA0766	CH3-		H	
YA0767	CH3-		H	
YA0768	CH3-		H	
YA0769	CH3-		H	
YA0770	CH3-		H	
YA0771	CH3-		H	
YA0772	CH3-		H	
YA0773	CH3-		H	
YA0774	CH3-		H	
YA0775	CH3-		H	
YA0776	CH3-		H	
YA0777	CH3-		H	

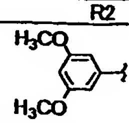
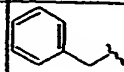
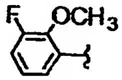
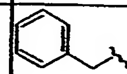
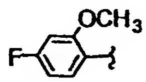
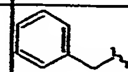
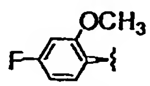
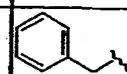
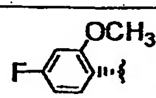
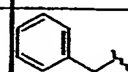
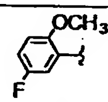
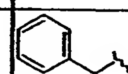
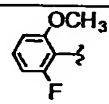
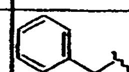
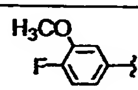
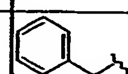
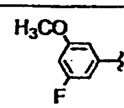
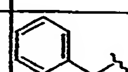
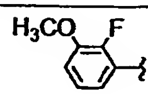
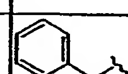
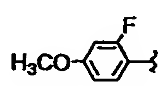
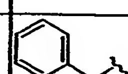
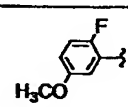
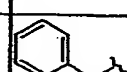
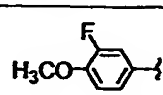
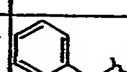
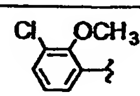
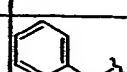
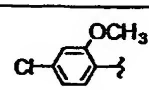
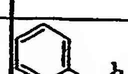
No.	R1	R2	R3	R4
YA0778	CH3-		H	
YA0779	CH3-		H	
YA0780	CH3-		H	
YA0781	CH3-		H	
YA0782	CH3-		H	
YA0783	CH3-		H	
YA0784	CH3-		H	
YA0785	CH3-		H	
YA0786	CH3-		H	
YA0787	CH3-		H	
YA0788	CH3-		H	
YA0789	CH3-		H	
YA0790	CH3-		H	
YA0791	CH3-		H	
YA0792	CH3-		H	
YA0793	CH3-		H	
YA0794	CH3-		H	
YA0795	CH3-		H	
YA0796	CH3-		H	
YA0797	CH3-		H	
YA0798	CH3-		H	

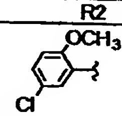
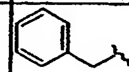
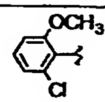
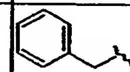
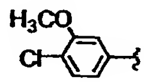
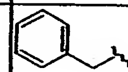
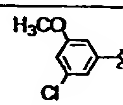
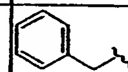
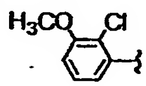
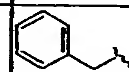
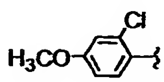
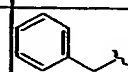
No.	R1	R2	R3	R4
YA0799	CH3–		H	
YA0800	CH3–		H	
YA0801	CH3–		H	
YA0802	CH3–		H	
YA0803	CH3–		H	
YA0804	CH3–		H	
YA0805	CH3–		H	
YA0806	CH3–		H	
YA0807	CH3–		H	
YA0808	CH3–		H	
YA0809	CH3–		H	
YA0810	CH3–		H	
YA0811	CH3–		H	
YA0812	CH3–		H	
YA0813	CH3–		H	
YA0814	CH3–		H	
YA0815	CH3–		H	
YA0816	CH3–		H	
YA0817	CH3–		H	
YA0818	CH3–		H	
YA0819	CH3–		H	

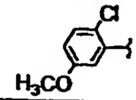
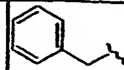
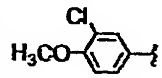
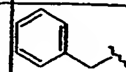
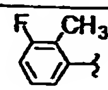
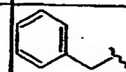
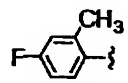
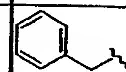
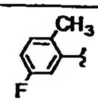
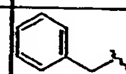
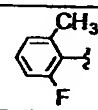
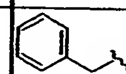
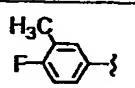
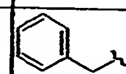
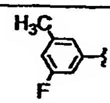
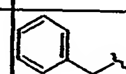
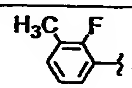
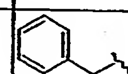
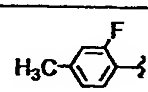
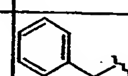
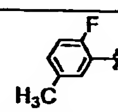
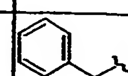
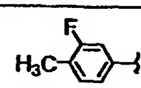
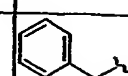
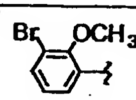
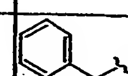
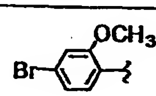
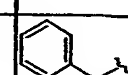
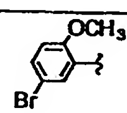
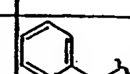
No.	R1	R2	R3	R4
YA0820	CH3-		H	
YA0821	CH3-		H	
YA0822	CH3-		H	
YA0823	CH3-		H	
YA0824	CH3-		H	
YA0825	CH3-		H	
YA0826	CH3-		H	
YA0827	CH3-		H	
YA0828	CH3-		H	
YA0829	CH3-		H	
YA0830	CH3-		H	
YA0831	CH3-		H	
YA0832	CH3-		H	
YA0833	CH3-		H	
YA0834	CH3-		H	
YA0835	CH3-		H	
YA0836	CH3-		H	
YA0837	CH3-		H	
YA0838	CH3-		H	
YA0839	CH3-		H	
YA0840	CH3-		H	

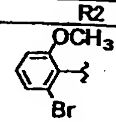
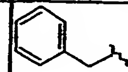
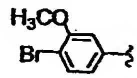
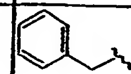
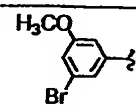
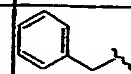
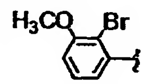
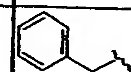
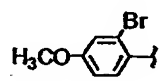
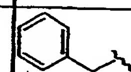
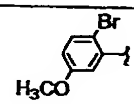
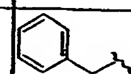
No.	R1	R2	R3	R4
YA0841	CH3-		H	
YA0842	CH3-		H	
YA0843	CH3-		H	
YA0844	CH3-		H	
YA0845	CH3-		H	
YA0846	CH3-		H	
YA0847	CH3-		H	
YA0848	CH3-		H	
YA0849	CH3-		H	
YA0850	CH3-		H	
YA0851	CH3-		H	
YA0852	CH3-		H	
YA0853	CH3-		H	
YA0854	CH3-		H	
YA0855	CH3-		H	

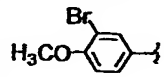
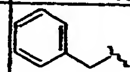
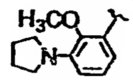
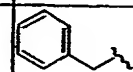
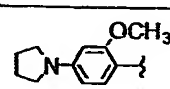
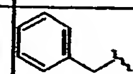
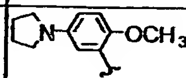
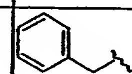
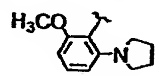
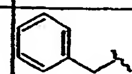
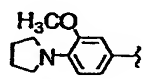
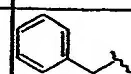
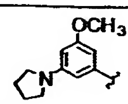
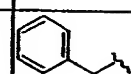
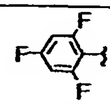
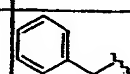
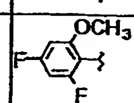
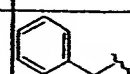
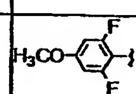
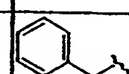
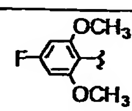
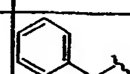
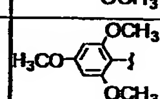
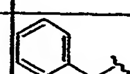
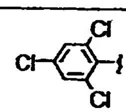
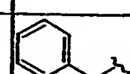
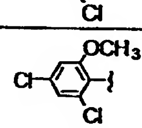
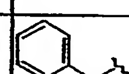
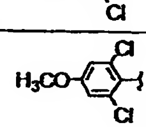
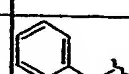
No.	R1	R2	R3	R4
YA0856	CH3-		H	
YA0857	CH3-		H	
YA0858	CH3-		H	
YA0859	CH3-		H	
YA0860	CH3-		H	
YA0861	CH3-		H	

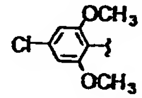
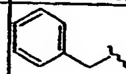
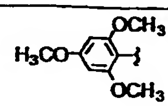
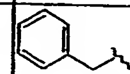
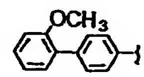
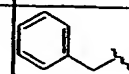
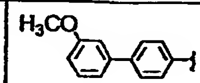
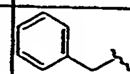
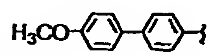
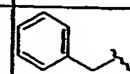
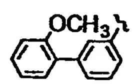
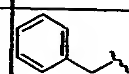
No.	R1	R2	R3	R4
YA0862	CH3-		H	
YA0863	CH3-		H	
YA0864	CH3-		H	
YA0865	CH3-		H	
YA0866	CH3-		H	
YA0867	CH3-		H	
YA0868	CH3-		H	
YA0869	CH3-		H	
YA0870	CH3-		H	
YA0871	CH3-		H	
YA0872	CH3-		H	
YA0873	CH3-		H	
YA0874	CH3-		H	
YA0875	CH3-		H	
YA0876	CH3-		H	

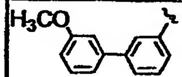
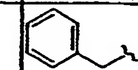
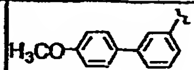
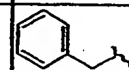
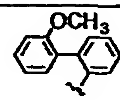
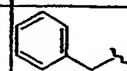
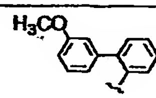
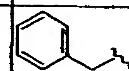
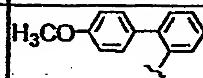
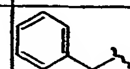
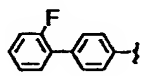
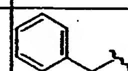
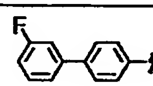
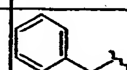
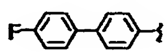
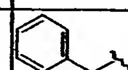
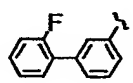
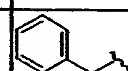
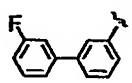
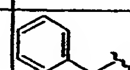
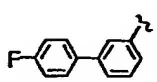
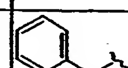
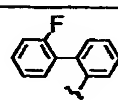
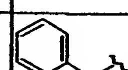
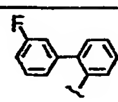
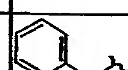
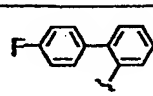
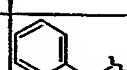
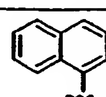
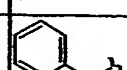
No.	R1	R2	R3	R4
YA0877	CH3-		H	
YA0878	CH3-		H	
YA0879	CH3-		H	
YA0880	CH3-		H	
YA0881	CH3-		H	
YA0882	CH3-		H	

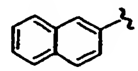
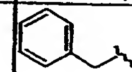
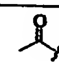
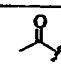
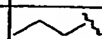
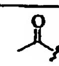
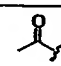
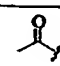
No.	R1	R2	R3	R4
YA0883	CH3-		H	
YA0884	CH3-		H	
YA0885	CH3-		H	
YA0886	CH3-		H	
YA0887	CH3-		H	
YA0888	CH3-		H	
YA0889	CH3-		H	
YA0890	CH3-		H	
YA0891	CH3-		H	
YA0892	CH3-		H	
YA0893	CH3-		H	
YA0894	CH3-		H	
YA0895	CH3-		H	
YA0896	CH3-		H	
YA0897	CH3-		H	

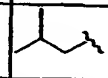
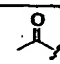
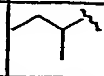
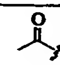
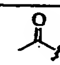
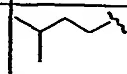
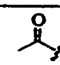
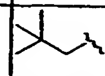
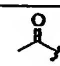
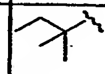
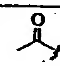
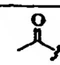
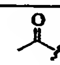
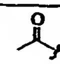
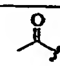
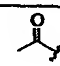
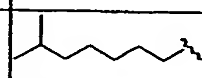
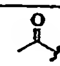
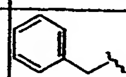
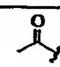
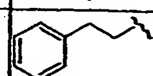
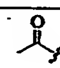
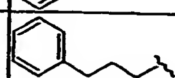
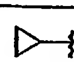
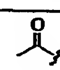
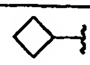
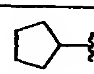
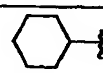
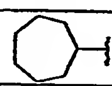
No.	R1	R2	R3	R4
YA0898	CH3-		H	
YA0899	CH3-		H	
YA0900	CH3-		H	
YA0901	CH3-		H	
YA0902	CH3-		H	
YA0903	CH3-		H	

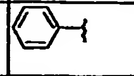
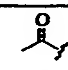
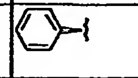
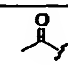
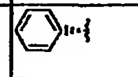
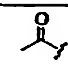
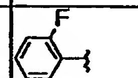
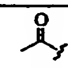
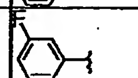
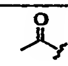
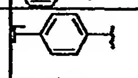
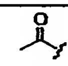
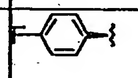
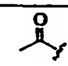
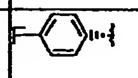
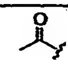
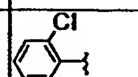
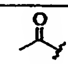
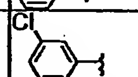
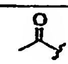
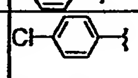
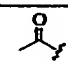
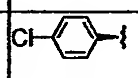
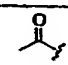
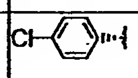
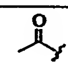
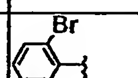
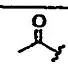
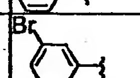
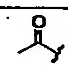
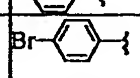
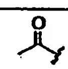
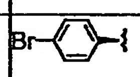
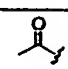
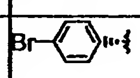
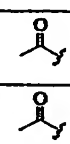
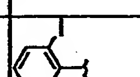
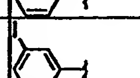
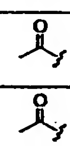
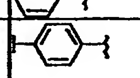
No.	R1	R2	R3	R4
YA0904	CH3-		H	
YA0905	CH3-		H	
YA0906	CH3-		H	
YA0907	CH3-		H	
YA0908	CH3-		H	
YA0909	CH3-		H	
YA0910	CH3-		H	
YA0911	CH3-		H	
YA0912	CH3-		H	
YA0913	CH3-		H	
YA0914	CH3-		H	
YA0915	CH3-		H	
YA0916	CH3-		H	
YA0917	CH3-		H	
YA0918	CH3-		H	

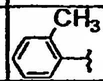
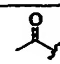
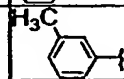
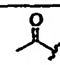
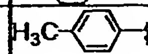
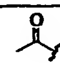
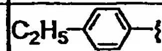
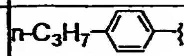
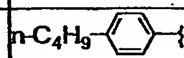
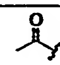
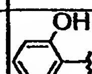
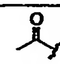
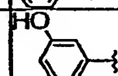
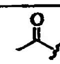
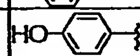
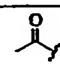
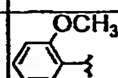
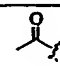
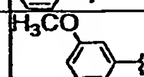
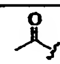
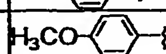
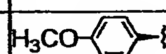
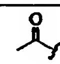
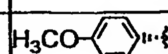
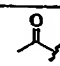
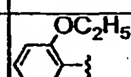
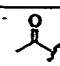
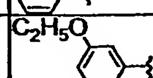
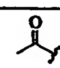
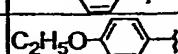
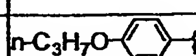
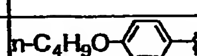
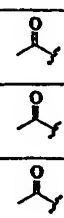
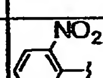
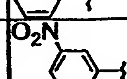
No.	R1	R2	R3	R4
YA0919	CH3-		H	
YA0920	CH3-		H	
YA0921	CH3-		H	
YA0922	CH3-		H	
YA0923	CH3-		H	
YA0924	CH3-		H	

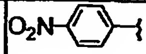
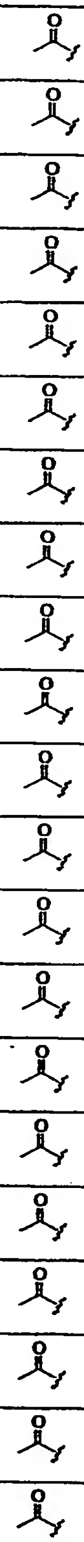
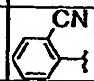
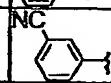
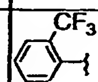
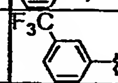
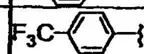
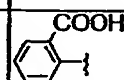
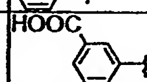
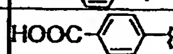
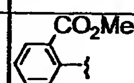
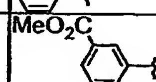
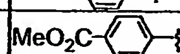
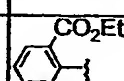
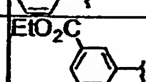
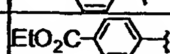
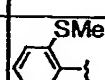
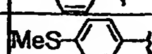
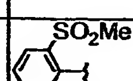
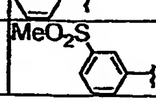
No.	R1	R2	R3	R4
YA0925	CH3–		H	
YA0926	CH3–		H	
YA0927	CH3–		H	
YA0928	CH3–		H	
YA0929	CH3–		H	
YA0930	CH3–		H	
YA0931	CH3–		H	
YA0932	CH3–		H	
YA0933	CH3–		H	
YA0934	CH3–		H	
YA0935	CH3–		H	
YA0936	CH3–		H	
YA0937	CH3–		H	
YA0938	CH3–		H	
YA0939	CH3–		H	

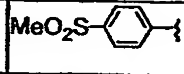
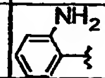
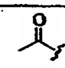
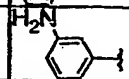
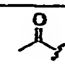
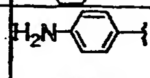
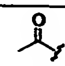
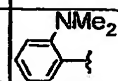
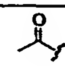
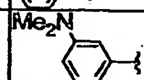
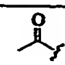
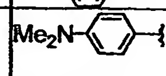
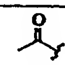
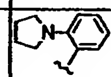
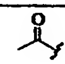
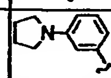
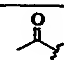
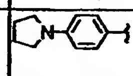
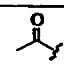
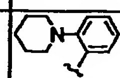
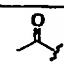
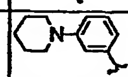
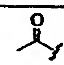
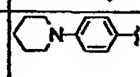
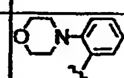
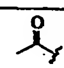
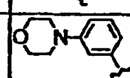
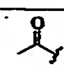
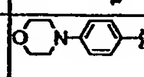
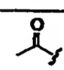
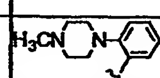
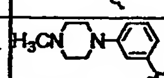
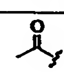
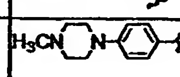
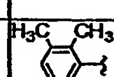
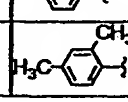
No.	R1	R2	R3	R4
YA0940	CH3−		H	
YA0941	CH3−	CH3−	H	
YA0942	CH3−	CH3CH2−	H	
YA0943	CH3−		H	
YA0944	CH3−		H	
YA0945	CH3−		H	

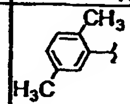
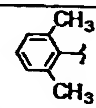
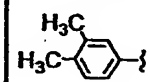
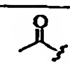
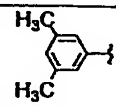
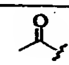
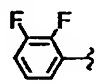
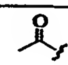
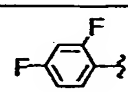
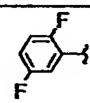
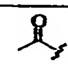
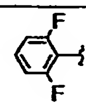
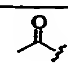
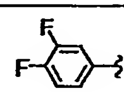
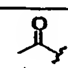
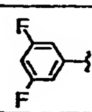
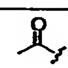
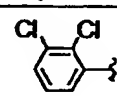
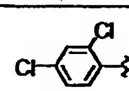
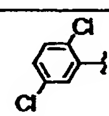
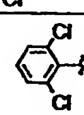
No.	R1	R2	R3	R4
YA0946	CH3-		H	
YA0947	CH3-		H	
YA0948	CH3-		H	
YA0949	CH3-		H	
YA0950	CH3-		H	
YA0951	CH3-		H	
YA0952	CH3-		H	
YA0953	CH3-		H	
YA0954	CH3-		H	
YA0955	CH3-		H	
YA0956	CH3-		H	
YA0957	CH3-		H	
YA0958	CH3-		H	
YA0959	CH3-		H	
YA0960	CH3-		H	
YA0961	CH3-		H	
YA0962	CH3-		H	
YA0963	CH3-		H	
YA0964	CH3-		H	
YA0965	CH3-		H	
YA0966	CH3-		H	

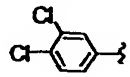
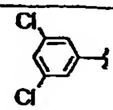
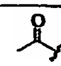
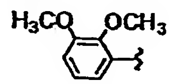
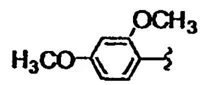
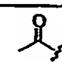
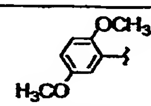
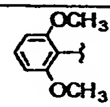
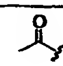
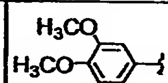
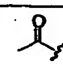
No.	R1	R2	R3	R4
YA0967	CH3–		H	
YA0968	CH3–		H	
YA0969	CH3–		H	
YA0970	CH3–		H	
YA0971	CH3–		H	
YA0972	CH3–		H	
YA0973	CH3–		H	
YA0974	CH3–		H	
YA0975	CH3–		H	
YA0976	CH3–		H	
YA0977	CH3–		H	
YA0978	CH3–		H	
YA0979	CH3–		H	
YA0980	CH3–		H	
YA0981	CH3–		H	
YA0982	CH3–		H	
YA0983	CH3–		H	
YA0984	CH3–		H	
YA0985	CH3–		H	
YA0986	CH3–		H	
YA0987	CH3–		H	

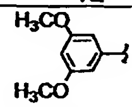
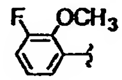
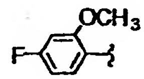
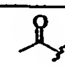
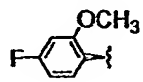
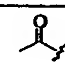
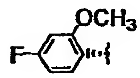
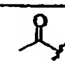
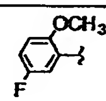
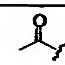
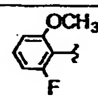
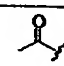
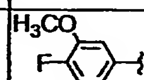
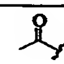
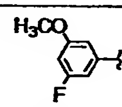
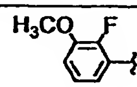
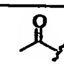
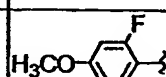
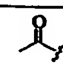
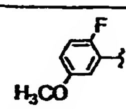
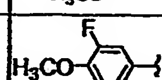
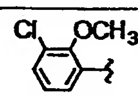
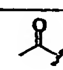
No.	R1	R2	R3	R4
YA0988	CH3–		H	
YA0989	CH3–		H	
YA0990	CH3–		H	
YA0991	CH3–		H	
YA0992	CH3–		H	
YA0993	CH3–		H	
YA0994	CH3–		H	
YA0995	CH3–		H	
YA0996	CH3–		H	
YA0997	CH3–		H	
YA0998	CH3–		H	
YA0999	CH3–		H	
YA1000	CH3–		H	
YA1001	CH3–		H	
YA1002	CH3–		H	
YA1003	CH3–		H	
YA1004	CH3–		H	
YA1005	CH3–		H	
YA1006	CH3–		H	
YA1007	CH3–		H	
YA1008	CH3–		H	

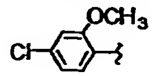
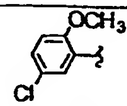
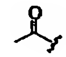
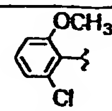
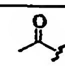
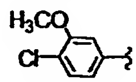
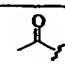
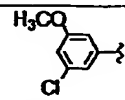
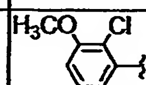
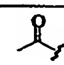
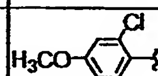
No.	R1	R2	R3	R4
YA1009	CH3-		H	
YA1010	CH3-		H	
YA1011	CH3-		H	
YA1012	CH3-		H	
YA1013	CH3-		H	
YA1014	CH3-		H	
YA1015	CH3-		H	
YA1016	CH3-		H	
YA1017	CH3-		H	
YA1018	CH3-		H	
YA1019	CH3-		H	
YA1020	CH3-		H	
YA1021	CH3-		H	
YA1022	CH3-		H	
YA1023	CH3-		H	
YA1024	CH3-		H	
YA1025	CH3-		H	
YA1026	CH3-		H	
YA1027	CH3-		H	
YA1028	CH3-		H	
YA1029	CH3-		H	

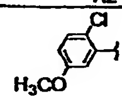
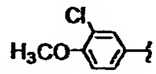
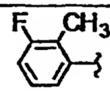
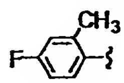
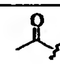
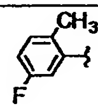
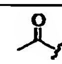
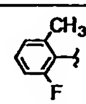
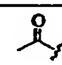
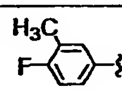
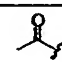
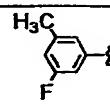
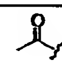
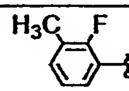
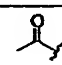
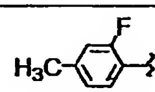
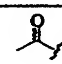
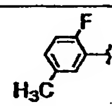
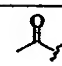
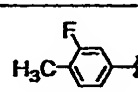
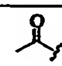
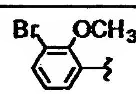
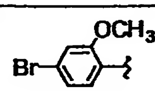
No.	R1	R2	R3	R4
YA1030	CH3-		H	
YA1031	CH3-		H	
YA1032	CH3-		H	
YA1033	CH3-		H	
YA1034	CH3-		H	
YA1035	CH3-		H	
YA1036	CH3-		H	
YA1037	CH3-		H	
YA1038	CH3-		H	
YA1039	CH3-		H	
YA1040	CH3-		H	
YA1041	CH3-		H	
YA1042	CH3-		H	
YA1043	CH3-		H	
YA1044	CH3-		H	
YA1045	CH3-		H	
YA1046	CH3-		H	
YA1047	CH3-		H	
YA1048	CH3-		H	
YA1049	CH3-		H	
YA1050	CH3-		H	

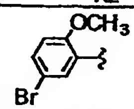
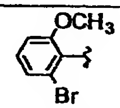
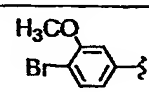
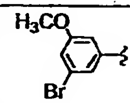
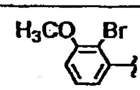
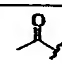
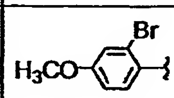
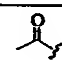
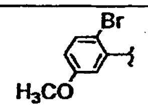
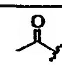
No.	R1	R2	R3	R4
YA1051	CH3–		H	
YA1052	CH3–		H	
YA1053	CH3–		H	
YA1054	CH3–		H	
YA1055	CH3–		H	
YA1056	CH3–		H	
YA1057	CH3–		H	
YA1058	CH3–		H	
YA1059	CH3–		H	
YA1060	CH3–		H	
YA1061	CH3–		H	
YA1062	CH3–		H	
YA1063	CH3–		H	
YA1064	CH3–		H	

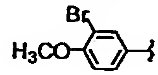
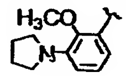
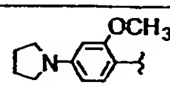
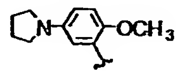
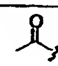
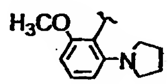
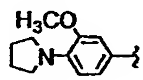
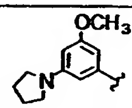
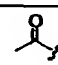
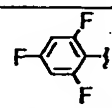
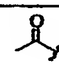
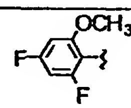
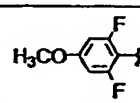
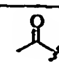
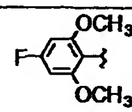
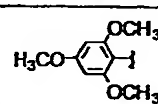
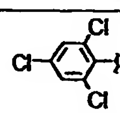
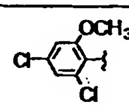
No.	R1	R2	R3	R4
YA1065	CH3–		H	
YA1066	CH3–		H	
YA1067	CH3–		H	
YA1068	CH3–		H	
YA1069	CH3–		H	
YA1070	CH3–		H	
YA1071	CH3–		H	

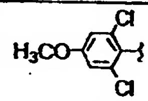
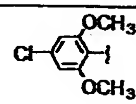
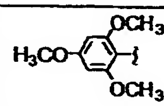
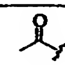
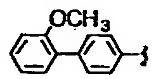
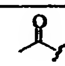
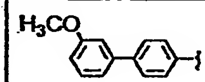
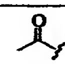
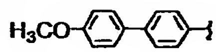
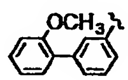
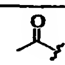
No.	R1	R2	R3	R4
YA1072	CH3-		H	
YA1073	CH3-		H	
YA1074	CH3-		H	
YA1075	CH3-		H	
YA1076	CH3-		H	
YA1077	CH3-		H	
YA1078	CH3-		H	
YA1079	CH3-		H	
YA1080	CH3-		H	
YA1081	CH3-		H	
YA1082	CH3-		H	
YA1083	CH3-		H	
YA1084	CH3-		H	
YA1085	CH3-		H	

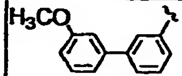
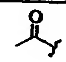
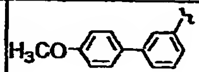
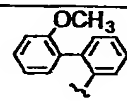
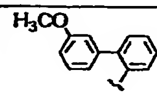
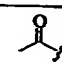
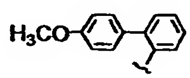
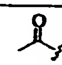
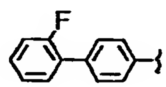
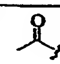
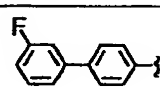
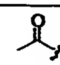
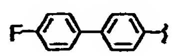
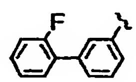
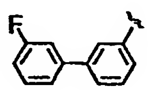
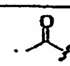
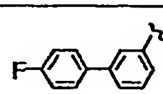
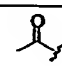
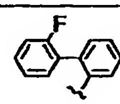
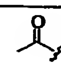
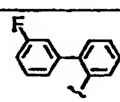
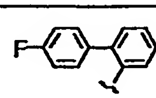
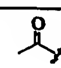
No.	R1	R2	R3	R4
YA1086	CH3-		H	
YA1087	CH3-		H	
YA1088	CH3-		H	
YA1089	CH3-		H	
YA1090	CH3-		H	
YA1091	CH3-		H	
YA1092	CH3-		H	

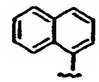
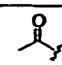
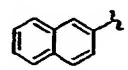
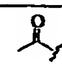
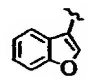
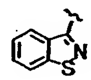
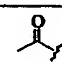
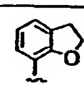
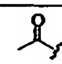
No.	R1	R2	R3	R4
YA1093	CH3-		H	
YA1094	CH3-		H	
YA1095	CH3-		H	
YA1096	CH3-		H	
YA1097	CH3-		H	
YA1098	CH3-		H	
YA1099	CH3-		H	
YA1100	CH3-		H	
YA1101	CH3-		H	
YA1102	CH3-		H	
YA1103	CH3-		H	
YA1104	CH3-		H	
YA1105	CH3-		H	
YA1106	CH3-		H	

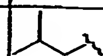
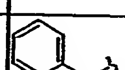
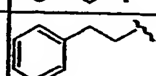
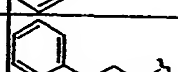
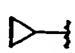
No.	R1	R2	R3	R4
YA1107	CH3-		H	
YA1108	CH3-		H	
YA1109	CH3-		H	
YA1110	CH3-		H	
YA1111	CH3-		H	
YA1112	CH3-		H	
YA1113	CH3-		H	

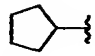
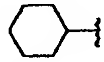
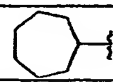
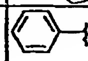
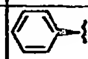
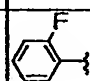
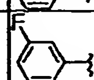
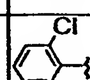
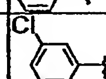
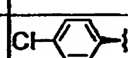
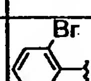
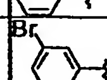
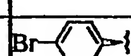
No.	R1	R2	R3	R4
YA1114	CH3-		H	
YA1115	CH3-		H	
YA1116	CH3-		H	
YA1117	CH3-		H	
YA1118	CH3-		H	
YA1119	CH3-		H	
YA1120	CH3-		H	
YA1121	CH3-		H	
YA1122	CH3-		H	
YA1123	CH3-		H	
YA1124	CH3-		H	
YA1125	CH3-		H	
YA1126	CH3-		H	
YA1127	CH3-		H	

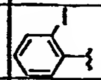
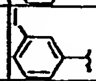
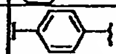
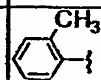
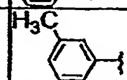
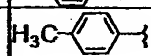
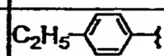
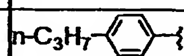
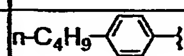
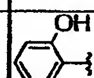
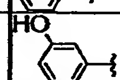
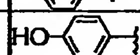
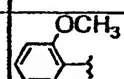
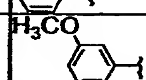
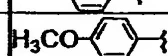
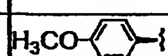
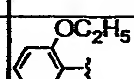
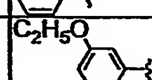
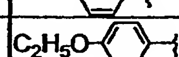
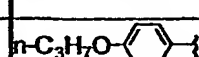
No.	R1	R2	R3	R4
YA1128	CH3-		H	
YA1129	CH3-		H	
YA1130	CH3-		H	
YA1131	CH3-		H	
YA1132	CH3-		H	
YA1133	CH3-		H	
YA1134	CH3-		H	

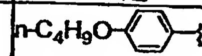
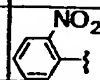
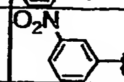
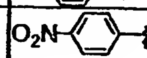
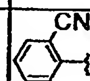
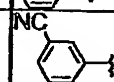
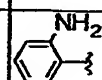
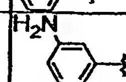
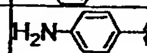
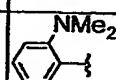
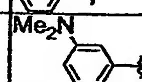
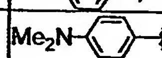
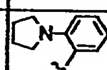
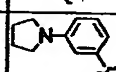
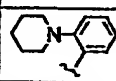
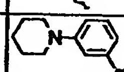
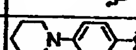
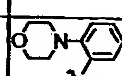
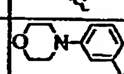
No.	R1	R2	R3	R4
YA1135	CH3–		H	
YA1136	CH3–		H	
YA1137	CH3–		H	
YA1138	CH3–		H	
YA1139	CH3–		H	
YA1140	CH3–		H	
YA1141	CH3–		H	
YA1142	CH3–		H	
YA1143	CH3–		H	
YA1144	CH3–		H	
YA1145	CH3–		H	
YA1146	CH3–		H	
YA1147	CH3–		H	
YA1148	CH3–		H	

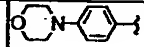
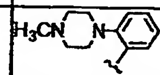
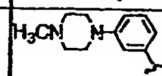
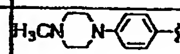
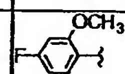
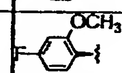
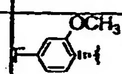
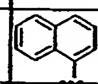
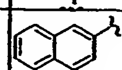
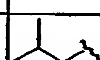
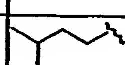
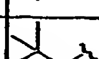
No.	R1	R2	R3	R4
YA1149	CH3-		H	
YA1150	CH3-		H	
YA1151	CH3-		H	
YA1152	CH3-		H	
YA1153	CH3-		H	
YA1154	CH3-	CH3-	CH3-	H
YA1155	CH3-	CH3CH2-	CH3-	H

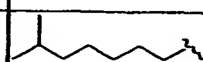
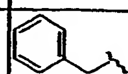
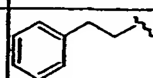
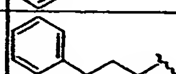
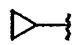
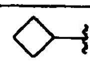
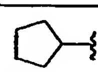
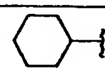
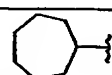
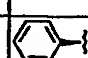
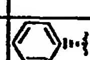
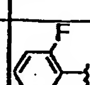
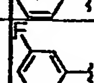
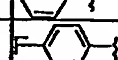
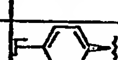
No.	R1	R2	R3	R4
YA1156	CH3-		CH3-	H
YA1157	CH3-		CH3-	H
YA1158	CH3-		CH3-	H
YA1159	CH3-		CH3-	H
YA1160	CH3-		CH3-	H
YA1161	CH3-		CH3-	H
YA1162	CH3-		CH3-	H
YA1163	CH3-		CH3-	H
YA1164	CH3-		CH3-	H
YA1165	CH3-		CH3-	H
YA1166	CH3-		CH3-	H
YA1167	CH3-		CH3-	H
YA1168	CH3-		CH3-	H
YA1169	CH3-		CH3-	H
YA1170	CH3-		CH3-	H
YA1171	CH3-		CH3-	H
YA1172	CH3-		CH3-	H
YA1173	CH3-		CH3-	H
YA1174	CH3-		CH3-	H
YA1175	CH3-		CH3-	H
YA1176	CH3-		CH3-	H

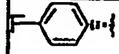
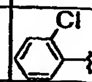
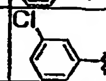
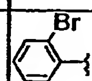
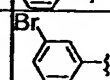
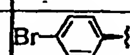
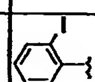
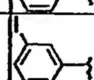
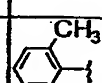
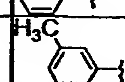
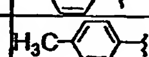
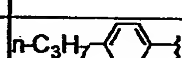
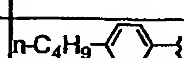
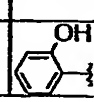
No.	R1	R2	R3	R4
YA1177	CH3–		CH3–	H
YA1178	CH3–		CH3–	H
YA1179	CH3–		CH3–	H
YA1180	CH3–		CH3–	H
YA1181	CH3–		CH3–	H
YA1182	CH3–		CH3–	H
YA1183	CH3–		CH3–	H
YA1184	CH3–		CH3–	H
YA1185	CH3–		CH3–	H
YA1186	CH3–		CH3–	H
YA1187	CH3–		CH3–	H
YA1188	CH3–		CH3–	H
YA1189	CH3–		CH3–	H
YA1190	CH3–		CH3–	H
YA1191	CH3–		CH3–	H
YA1192	CH3–		CH3–	H
YA1193	CH3–		CH3–	H
YA1194	CH3–		CH3–	H
YA1195	CH3–		CH3–	H
YA1196	CH3–		CH3–	H
YA1197	CH3–		CH3–	H

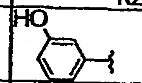
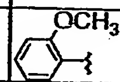
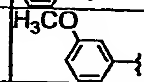
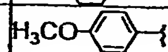
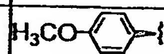
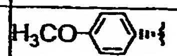
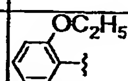
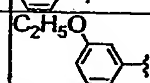
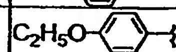
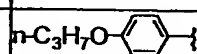
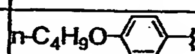
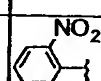
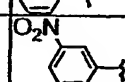
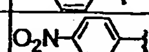
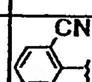
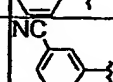
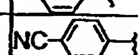
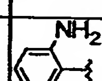
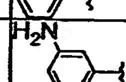
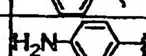
No.	R1	R2	R3	R4
YA1198	CH3-		CH3-	H
YA1199	CH3-		CH3-	H
YA1200	CH3-		CH3-	H
YA1201	CH3-		CH3-	H
YA1202	CH3-		CH3-	H
YA1203	CH3-		CH3-	H
YA1204	CH3-		CH3-	H
YA1205	CH3-		CH3-	H
YA1206	CH3-		CH3-	H
YA1207	CH3-		CH3-	H
YA1208	CH3-		CH3-	H
YA1209	CH3-		CH3-	H
YA1210	CH3-		CH3-	H
YA1211	CH3-		CH3-	H
YA1212	CH3-		CH3-	H
YA1213	CH3-		CH3-	H
YA1214	CH3-		CH3-	H
YA1215	CH3-		CH3-	H
YA1216	CH3-		CH3-	H
YA1217	CH3-		CH3-	H
YA1218	CH3-		CH3-	H

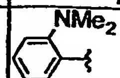
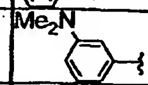
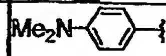
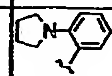
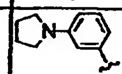
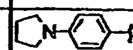
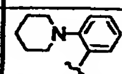
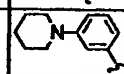
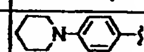
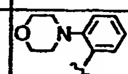
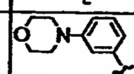
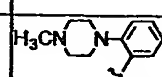
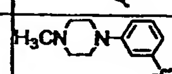
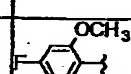
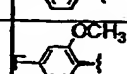
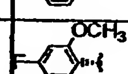
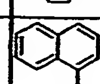
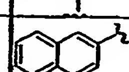
No.	R1	R2	R3	R4
YA1219	CH3–		CH3–	H
YA1220	CH3–		CH3–	H
YA1221	CH3–		CH3–	H
YA1222	CH3–		CH3–	H
YA1223	CH3–		CH3–	H
YA1224	CH3–		CH3–	H
YA1225	CH3–		CH3–	H
YA1226	CH3–		CH3–	H
YA1227	CH3–		CH3–	H
YA1228	CH3–		CH3–	H
YA1229	CH3–		CH3–	H
YA1230	CH3–		CH3–	H
YA1231	CH3–		CH3–	H
YA1232	CH3–		CH3–	H
YA1233	CH3–		CH3–	H
YA1234	CH3–		CH3–	H
YA1235	CH3–		CH3–	H
YA1236	CH3–		CH3–	H
YA1237	CH3–		CH3–	H
YA1238	CH3–		CH3–	H
YA1239	CH3–		CH3–	H

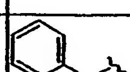
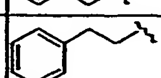
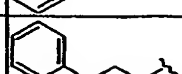
No.	R1	R2	R3	R4
YA1240	CH3–		CH3–	H
YA1241	CH3–		CH3–	H
YA1242	CH3–		CH3–	H
YA1243	CH3–		CH3–	H
YA1244	CH3–		CH3–	H
YA1245	CH3–		CH3–	H
YA1246	CH3–		CH3–	H
YA1247	CH3–		CH3–	H
YA1248	CH3–		CH3–	H
YA1249	CH3–	CH3–	H	CH3–
YA1250	CH3–	CH3CH2–	H	CH3–
YA1251	CH3–		H	CH3–
YA1252	CH3–		H	CH3–
YA1253	CH3–		H	CH3–
YA1254	CH3–		H	CH3–
YA1255	CH3–		H	CH3–
YA1256	CH3–		H	CH3–
YA1257	CH3–		H	CH3–
YA1258	CH3–		H	CH3–
YA1259	CH3–		H	CH3–
YA1260	CH3–		H	CH3–

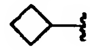
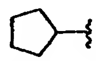
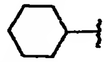
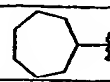
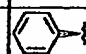
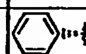
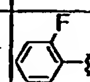
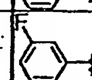
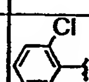
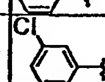
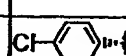
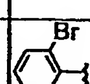
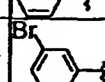
No.	R1	R2	R3	R4
YA1261	CH3-		H	CH3-
YA1262	CH3-		H	CH3-
YA1263	CH3-		H	CH3-
YA1264	CH3-		H	CH3-
YA1265	CH3-		H	CH3-
YA1266	CH3-		H	CH3-
YA1267	CH3-		H	CH3-
YA1268	CH3-		H	CH3-
YA1269	CH3-		H	CH3-
YA1270	CH3-		H	CH3-
YA1271	CH3-		H	CH3-
YA1272	CH3-		H	CH3-
YA1273	CH3-		H	CH3-
YA1274	CH3-		H	CH3-
YA1275	CH3-		H	CH3-
YA1276	CH3-		H	CH3-
YA1277	CH3-		H	CH3-
YA1278	CH3-		H	CH3-
YA1279	CH3-		H	CH3-
YA1280	CH3-		H	CH3-
YA1281	CH3-		H	CH3-

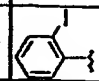
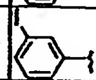
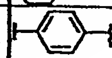
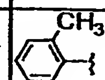
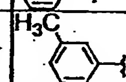
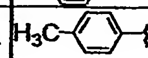
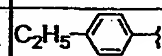
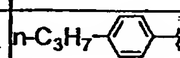
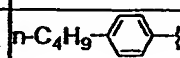
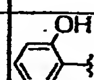
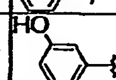
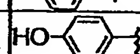
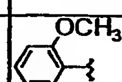
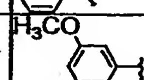
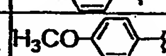
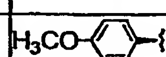
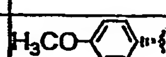
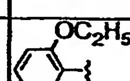
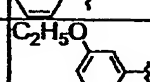
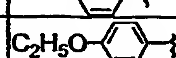
No.	R1	R2	R3	R4
YA1282	CH3–		H	CH3–
YA1283	CH3–		H	CH3–
YA1284	CH3–		H	CH3–
YA1285	CH3–		H	CH3–
YA1286	CH3–		H	CH3–
YA1287	CH3–		H	CH3–
YA1288	CH3–		H	CH3–
YA1289	CH3–		H	CH3–
YA1290	CH3–		H	CH3–
YA1291	CH3–		H	CH3–
YA1292	CH3–		H	CH3–
YA1293	CH3–		H	CH3–
YA1294	CH3–		H	CH3–
YA1295	CH3–		H	CH3–
YA1296	CH3–		H	CH3–
YA1297	CH3–		H	CH3–
YA1298	CH3–		H	CH3–
YA1299	CH3–		H	CH3–
YA1300	CH3–		H	CH3–
YA1301	CH3–		H	CH3–
YA1302	CH3–		H	CH3–

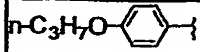
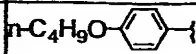
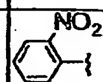
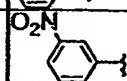
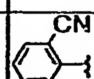
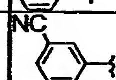
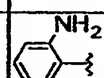
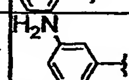
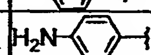
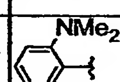
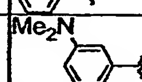
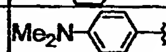
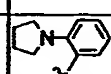
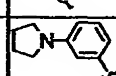
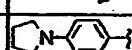
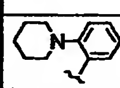
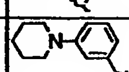
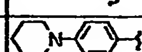
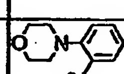
No.	R1	R2	R3	R4
YA1303	CH3-		H	CH3-
YA1304	CH3-		H	CH3-
YA1305	CH3-		H	CH3-
YA1306	CH3-		H	CH3-
YA1307	CH3-		H	CH3-
YA1308	CH3-		H	CH3-
YA1309	CH3-		H	CH3-
YA1310	CH3-		H	CH3-
YA1311	CH3-		H	CH3-
YA1312	CH3-		H	CH3-
YA1313	CH3-		H	CH3-
YA1314	CH3-		H	CH3-
YA1315	CH3-		H	CH3-
YA1316	CH3-		H	CH3-
YA1317	CH3-		H	CH3-
YA1318	CH3-		H	CH3-
YA1319	CH3-		H	CH3-
YA1320	CH3-		H	CH3-
YA1321	CH3-		H	CH3-
YA1322	CH3-		H	CH3-
YA1323	CH3-		H	CH3-

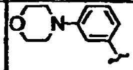
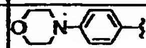
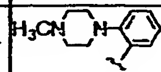
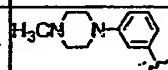
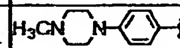
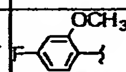
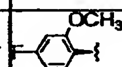
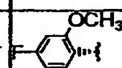
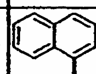
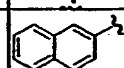
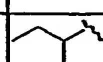
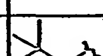
No.	R1	R2	R3	R4
YA1324	CH3-		H	CH3-
YA1325	CH3-		H	CH3-
YA1326	CH3-		H	CH3-
YA1327	CH3-		H	CH3-
YA1328	CH3-		H	CH3-
YA1329	CH3-		H	CH3-
YA1330	CH3-		H	CH3-
YA1331	CH3-		H	CH3-
YA1332	CH3-		H	CH3-
YA1333	CH3-		H	CH3-
YA1334	CH3-		H	CH3-
YA1335	CH3-		H	CH3-
YA1336	CH3-		H	CH3-
YA1337	CH3-		H	CH3-
YA1338	CH3-		H	CH3-
YA1339	CH3-		H	CH3-
YA1340	CH3-		H	CH3-
YA1341	CH3-		H	CH3-
YA1342	CH3-		H	CH3-
YA1343	CH3-		H	CH3-
YA1344	CH3CH2-	CH3-	H	H

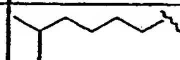
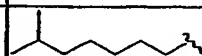
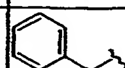
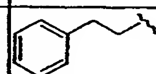
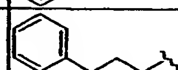
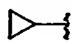
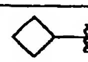
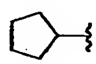
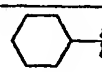
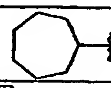
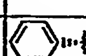
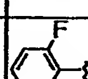
No.	R1	R2	R3	R4
YA1345	CH3CH2-	CH3CH2-	H	H
YA1346	CH3CH2-		H	H
YA1347	CH3CH2-		H	H
YA1348	CH3CH2-		H	H
YA1349	CH3CH2-		H	H
YA1350	CH3CH2-		H	H
YA1351	CH3CH2-		H	H
YA1352	CH3CH2-		H	H
YA1353	CH3CH2-		H	H
YA1354	CH3CH2-		H	H
YA1355	CH3CH2-		H	H
YA1356	CH3CH2-		H	H
YA1357	CH3CH2-		H	H
YA1358	CH3CH2-		H	H
YA1359	CH3CH2-		H	H
YA1360	CH3CH2-		H	H
YA1361	CH3CH2-		H	H
YA1362	CH3CH2-		H	H
YA1363	CH3CH2-		H	H
YA1364	CH3CH2-		H	H
YA1365	CH3CH2-		H	H

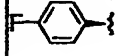
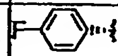
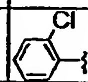
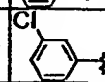
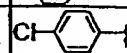
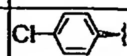
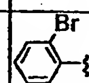
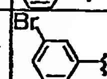
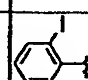
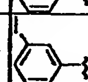
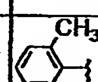
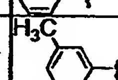
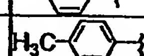
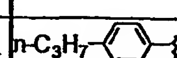
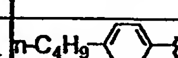
No.	R1	R2	R3	R4
YA1366	CH3CH2-		H	H
YA1367	CH3CH2-		H	H
YA1368	CH3CH2-		H	H
YA1369	CH3CH2-		H	H
YA1370	CH3CH2-		H	H
YA1371	CH3CH2-		H	H
YA1372	CH3CH2-		H	H
YA1373	CH3CH2-		H	H
YA1374	CH3CH2-		H	H
YA1375	CH3CH2-		H	H
YA1376	CH3CH2-		H	H
YA1377	CH3CH2-		H	H
YA1378	CH3CH2-		H	H
YA1379	CH3CH2-		H	H
YA1380	CH3CH2-		H	H
YA1381	CH3CH2-		H	H
YA1382	CH3CH2-		H	H
YA1383	CH3CH2-		H	H
YA1384	CH3CH2-		H	H
YA1385	CH3CH2-		H	H
YA1386	CH3CH2-		H	H

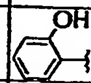
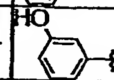
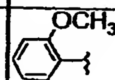
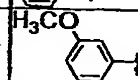
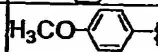
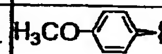
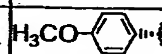
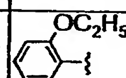
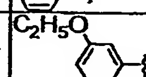
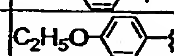
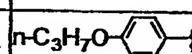
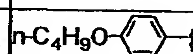
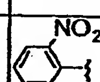
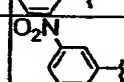
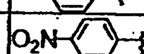
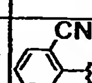
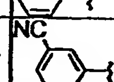
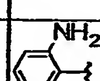
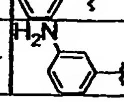
No.	R1	R2	R3	R4
YA1387	CH3CH2–		H	H
YA1388	CH3CH2–		H	H
YA1389	CH3CH2–		H	H
YA1390	CH3CH2–		H	H
YA1391	CH3CH2–		H	H
YA1392	CH3CH2–		H	H
YA1393	CH3CH2–		H	H
YA1394	CH3CH2–		H	H
YA1395	CH3CH2–		H	H
YA1396	CH3CH2–		H	H
YA1397	CH3CH2–		H	H
YA1398	CH3CH2–		H	H
YA1399	CH3CH2–		H	H
YA1400	CH3CH2–		H	H
YA1401	CH3CH2–		H	H
YA1402	CH3CH2–		H	H
YA1403	CH3CH2–		H	H
YA1404	CH3CH2–		H	H
YA1405	CH3CH2–		H	H
YA1406	CH3CH2–		H	H
YA1407	CH3CH2–		H	H

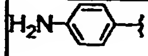
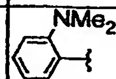
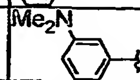
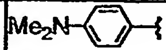
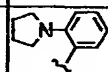
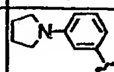
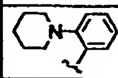
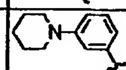
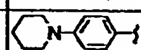
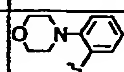
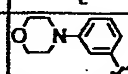
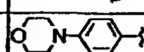
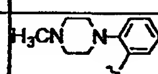
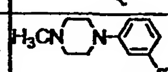
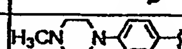
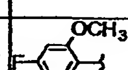
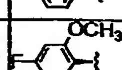
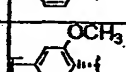
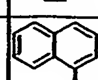
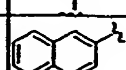
No.	R1	R2	R3	R4
YA1408	CH3CH2-		H	H
YA1409	CH3CH2-		H	H
YA1410	CH3CH2-		H	H
YA1411	CH3CH2-		H	H
YA1412	CH3CH2-		H	H
YA1413	CH3CH2-		H	H
YA1414	CH3CH2-		H	H
YA1415	CH3CH2-		H	H
YA1416	CH3CH2-		H	H
YA1417	CH3CH2-		H	H
YA1418	CH3CH2-		H	H
YA1419	CH3CH2-		H	H
YA1420	CH3CH2-		H	H
YA1421	CH3CH2-		H	H
YA1422	CH3CH2-		H	H
YA1423	CH3CH2-		H	H
YA1424	CH3CH2-		H	H
YA1425	CH3CH2-		H	H
YA1426	CH3CH2-		H	H
YA1427	CH3CH2-		H	H
YA1428	CH3CH2-		H	H

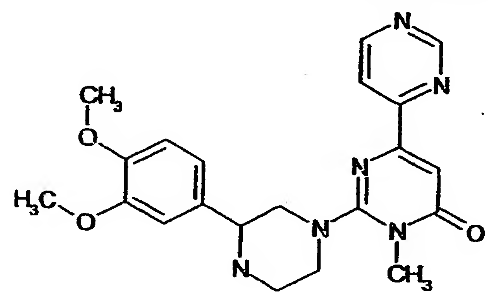
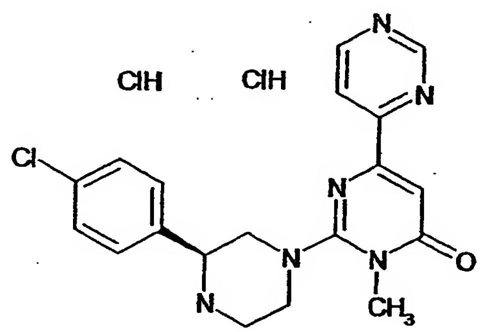
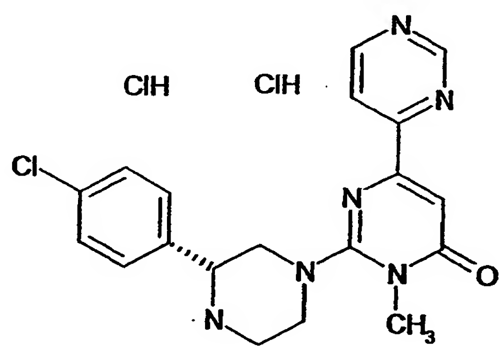
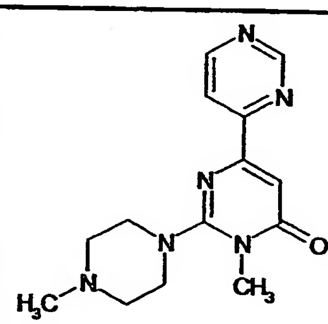
No.	R1	R2	R3	R4
YA1429	CH3CH2-		H	H
YA1430	CH3CH2-		H	H
YA1431	CH3CH2-		H	H
YA1432	CH3CH2-		H	H
YA1433	CH3CH2-		H	H
YA1434	CH3CH2-		H	H
YA1435	CH3CH2-		H	H
YA1436	CH3CH2-		H	H
YA1437	CH3CH2-		H	H
YA1438	CH3CH2-		H	H
YA1439	CH3CH2-	CH3-	H	CH3-
YA1440	CH3CH2-	CH3CH2-	H	CH3-
YA1441	CH3CH2-		H	CH3-
YA1442	CH3CH2-		H	CH3-
YA1443	CH3CH2-		H	CH3-
YA1444	CH3CH2-		H	CH3-
YA1445	CH3CH2-		H	CH3-
YA1446	CH3CH2-		H	CH3-
YA1447	CH3CH2-		H	CH3-
YA1448	CH3CH2-		H	CH3-
YA1449	CH3CH2-		H	CH3-

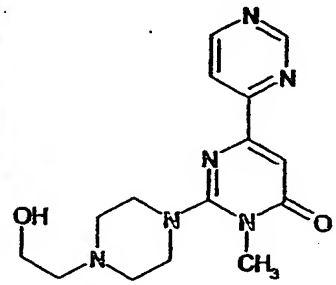
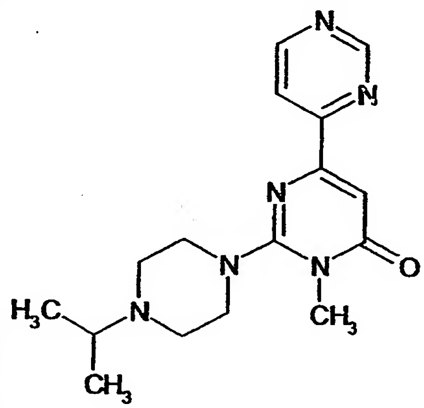
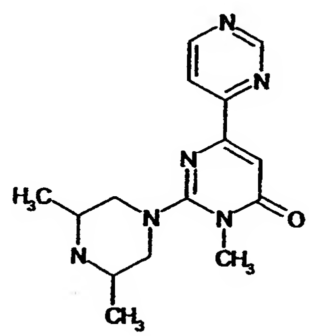
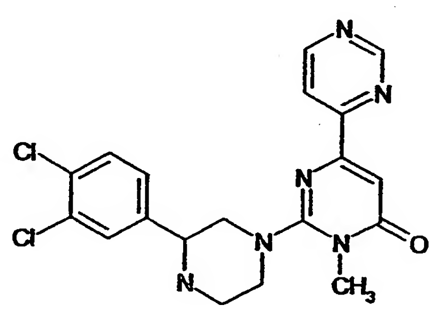
No.	R1	R2	R3	R4
YA1450	CH3CH2-		H	CH3-
YA1451	CH3CH2-		H	CH3-
YA1452	CH3CH2-		H	CH3-
YA1453	CH3CH2-		H	CH3-
YA1454	CH3CH2-		H	CH3-
YA1455	CH3CH2-		H	CH3-
YA1456	CH3CH2-		H	CH3-
YA1457	CH3CH2-		H	CH3-
YA1458	CH3CH2-		H	CH3-
YA1459	CH3CH2-		H	CH3-
YA1460	CH3CH2-		H	CH3-
YA1461	CH3CH2-		H	CH3-
YA1462	CH3CH2-		H	CH3-
YA1463	CH3CH2-		H	CH3-
YA1464	CH3CH2-		H	CH3-
YA1465	CH3CH2-		H	CH3-
YA1466	CH3CH2-		H	CH3-
YA1467	CH3CH2-		H	CH3-
YA1468	CH3CH2-		H	CH3-
YA1469	CH3CH2-		H	CH3-
YA1470	CH3CH2-		H	CH3-

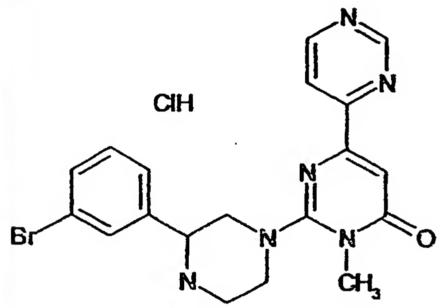
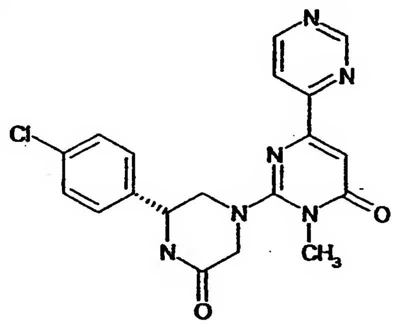
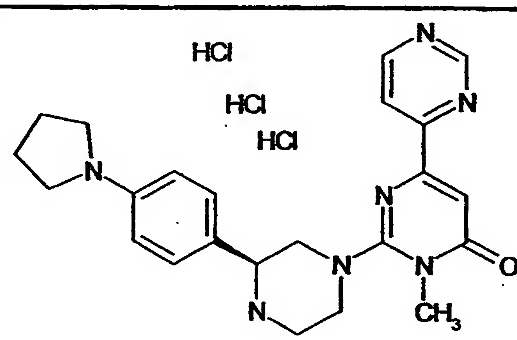
No.	R1	R2	R3	R4
YA1471	CH3CH2–		H	CH3–
YA1472	CH3CH2–		H	CH3–
YA1473	CH3CH2–		H	CH3–
YA1474	CH3CH2–		H	CH3–
YA1475	CH3CH2–		H	CH3–
YA1476	CH3CH2–		H	CH3–
YA1477	CH3CH2–		H	CH3–
YA1478	CH3CH2–		H	CH3–
YA1479	CH3CH2–		H	CH3–
YA1480	CH3CH2–		H	CH3–
YA1481	CH3CH2–		H	CH3–
YA1482	CH3CH2–		H	CH3–
YA1483	CH3CH2–		H	CH3–
YA1484	CH3CH2–		H	CH3–
YA1485	CH3CH2–		H	CH3–
YA1486	CH3CH2–		H	CH3–
YA1487	CH3CH2–		H	CH3–
YA1488	CH3CH2–		H	CH3–
YA1489	CH3CH2–		H	CH3–
YA1490	CH3CH2–		H	CH3–
YA1491	CH3CH2–		H	CH3–

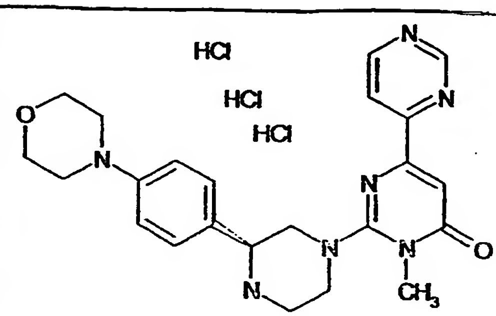
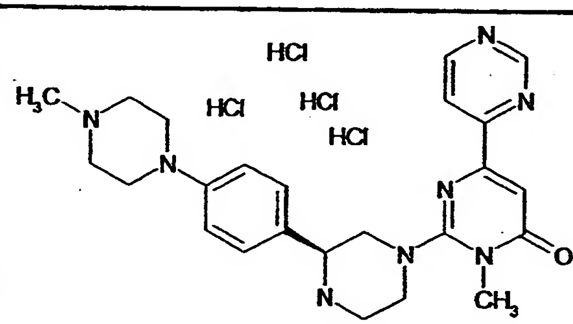
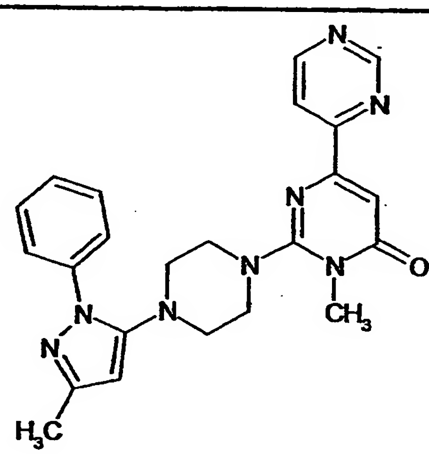
No.	R1	R2	R3	R4
YA1492	CH3CH2–		H	CH3–
YA1493	CH3CH2–		H	CH3–
YA1494	CH3CH2–		H	CH3–
YA1495	CH3CH2–		H	CH3–
YA1496	CH3CH2–		H	CH3–
YA1497	CH3CH2–		H	CH3–
YA1498	CH3CH2–		H	CH3–
YA1499	CH3CH2–		H	CH3–
YA1500	CH3CH2–		H	CH3–
YA1501	CH3CH2–		H	CH3–
YA1502	CH3CH2–		H	CH3–
YA1503	CH3CH2–		H	CH3–
YA1504	CH3CH2–		H	CH3–
YA1505	CH3CH2–		H	CH3–
YA1506	CH3CH2–		H	CH3–
YA1507	CH3CH2–		H	CH3–
YA1508	CH3CH2–		H	CH3–
YA1509	CH3CH2–		H	CH3–
YA1510	CH3CH2–		H	CH3–
YA1511	CH3CH2–		H	CH3–
YA1512	CH3CH2–		H	CH3–

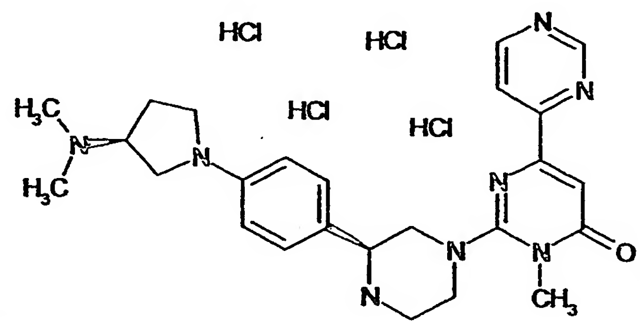
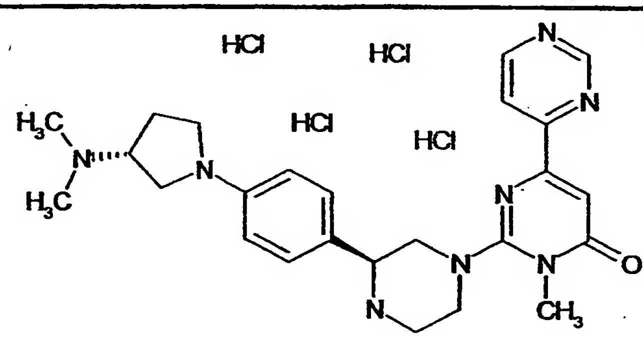
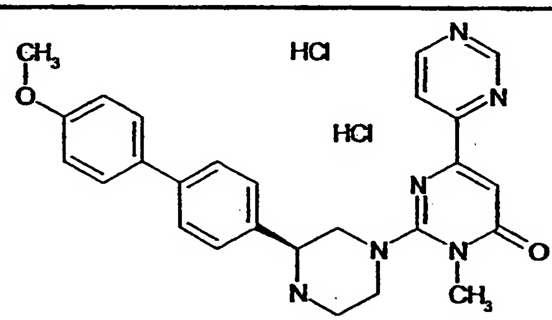
No.	R1	R2	R3	R4
YA1513	CH3CH2–		H	CH3–
YA1514	CH3CH2–		H	CH3–
YA1515	CH3CH2–		H	CH3–
YA1516	CH3CH2–		H	CH3–
YA1517	CH3CH2–		H	CH3–
YA1518	CH3CH2–		H	CH3–
YA1519	CH3CH2–		H	CH3–
YA1520	CH3CH2–		H	CH3–
YA1521	CH3CH2–		H	CH3–
YA1522	CH3CH2–		H	CH3–
YA1523	CH3CH2–		H	CH3–
YA1524	CH3CH2–		H	CH3–
YA1525	CH3CH2–		H	CH3–
YA1526	CH3CH2–		H	CH3–
YA1527	CH3CH2–		H	CH3–
YA1528	CH3CH2–		H	CH3–
YA1529	CH3CH2–		H	CH3–
YA1530	CH3CH2–		H	CH3–
YA1531	CH3CH2–		H	CH3–
YA1532	CH3CH2–		H	CH3–
YA1533	CH3CH2–		H	CH3–

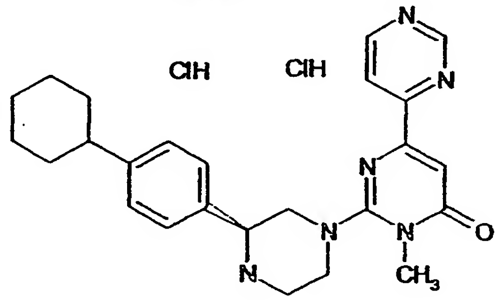
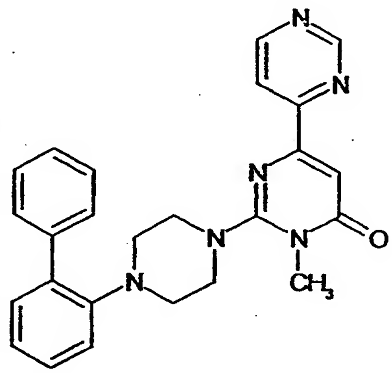
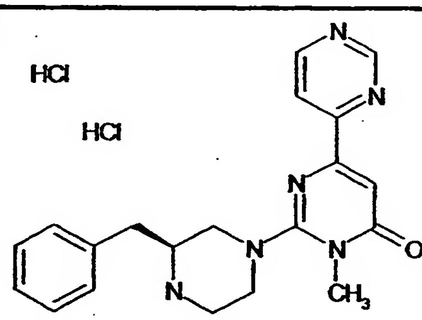
No.	STRUCTURE
YA1534	
YA1535	
YA1536	
YA1537	

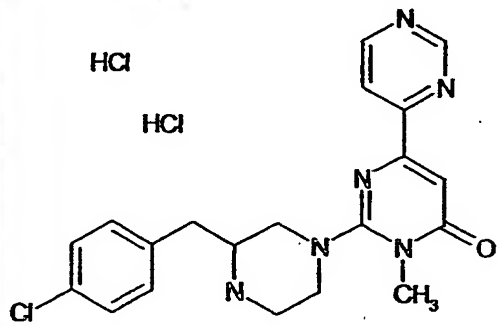
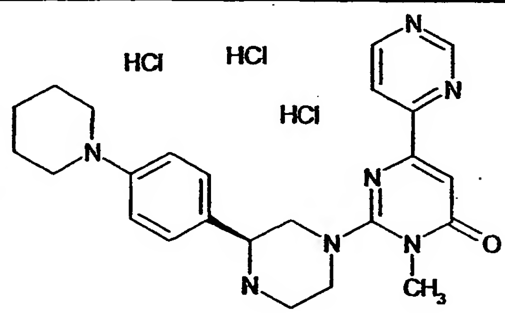
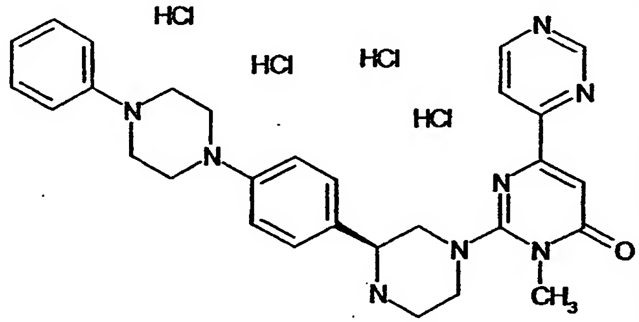
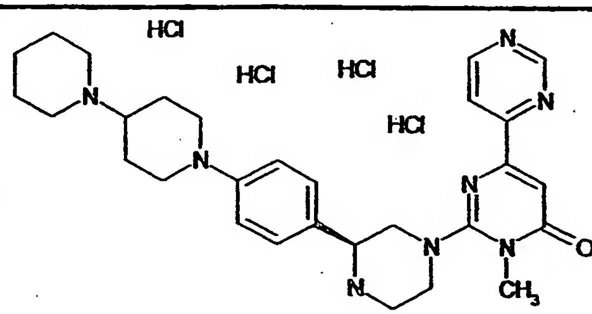
YA1538	
YA1539	
YA1540	
YA1541	

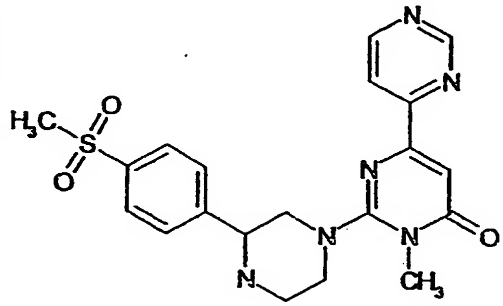
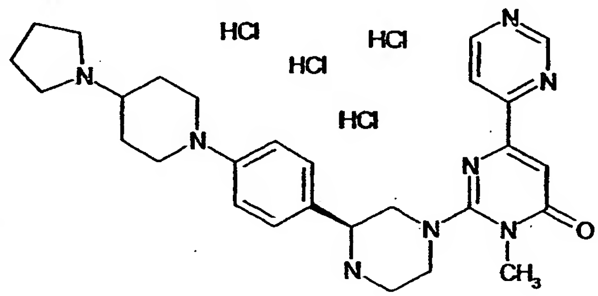
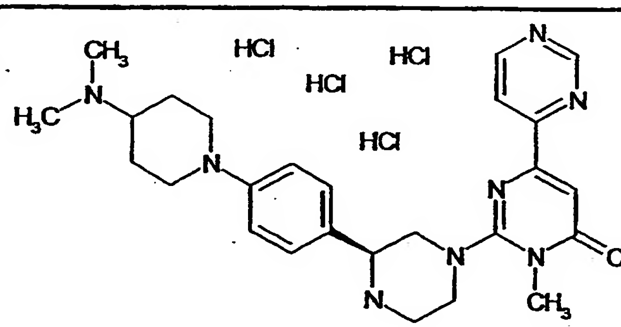
YA1542	
YA1543	
YA1544	

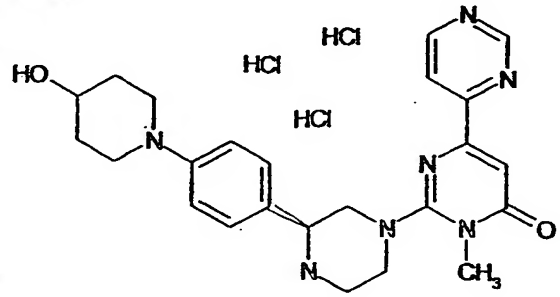
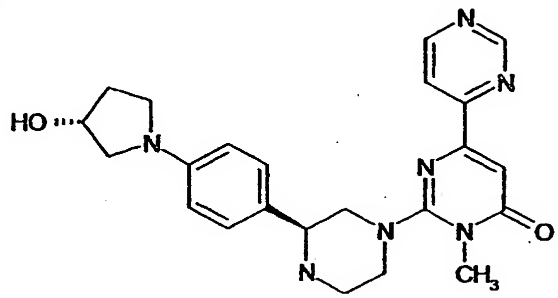
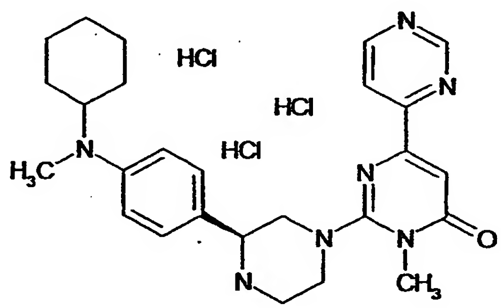
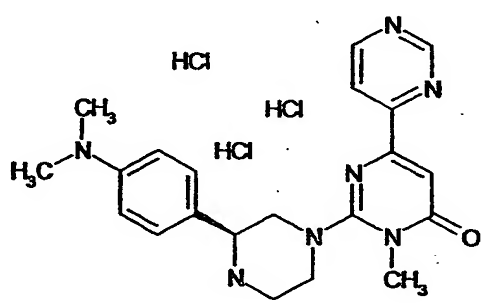
YA1545	
YA1546	
YA1547	

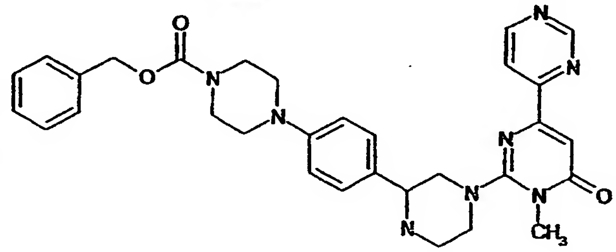
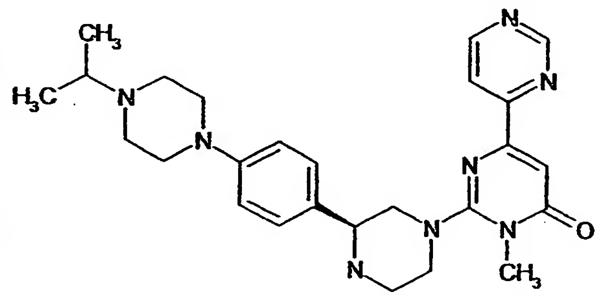
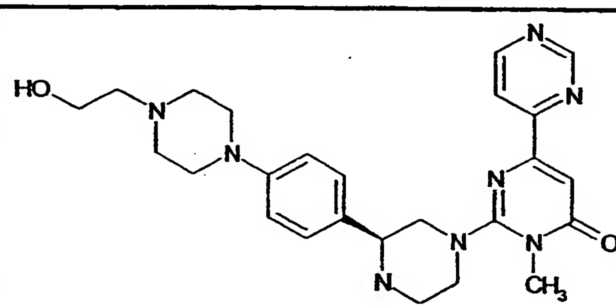
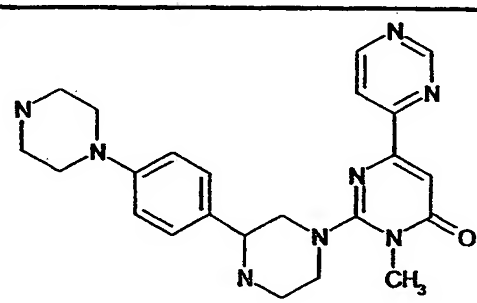
YA1548	
YA1549	
YA1550	

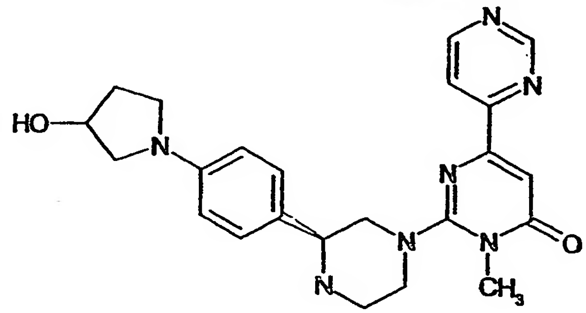
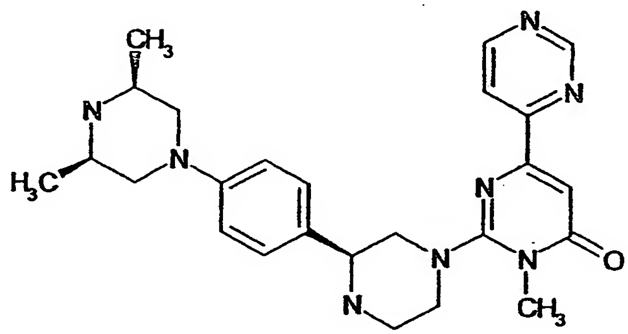
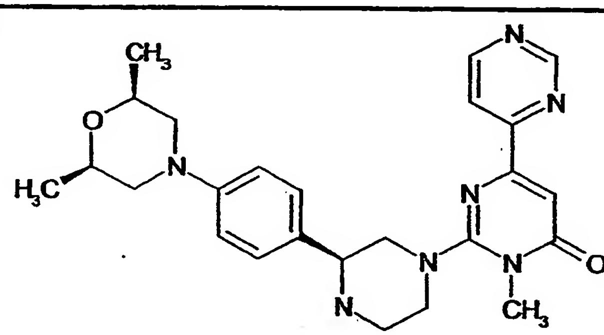
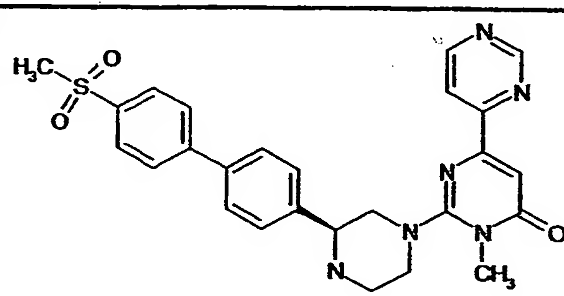
YA1551	
YA1552	
YA1553	

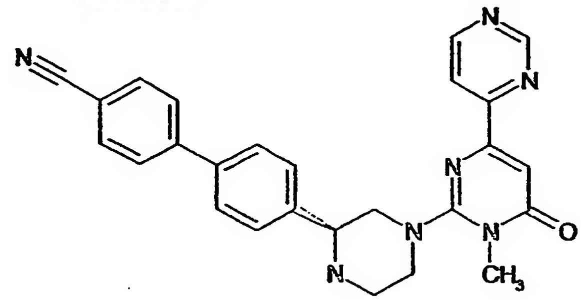
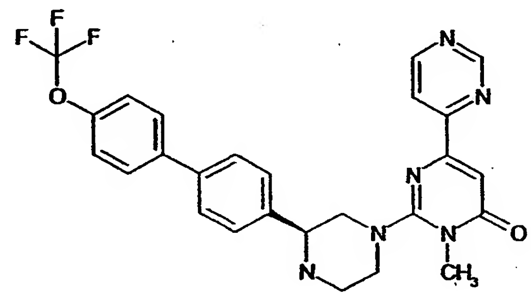
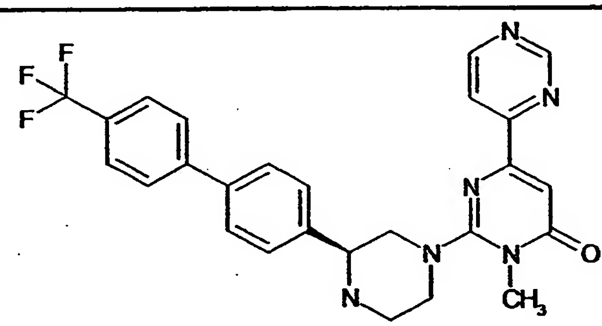
YA1554	
YA1555	
YA1556	
YA1557	

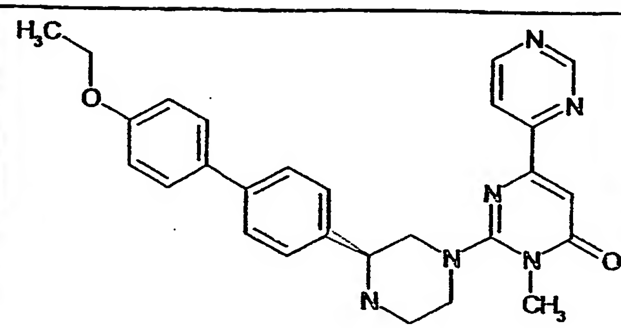
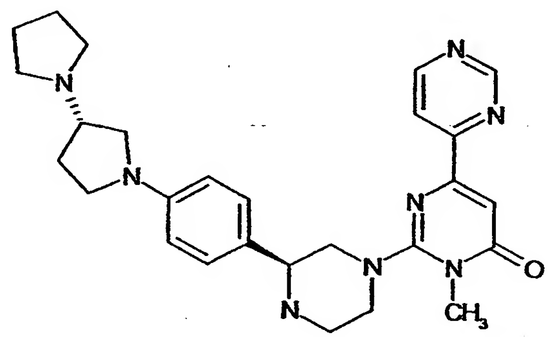
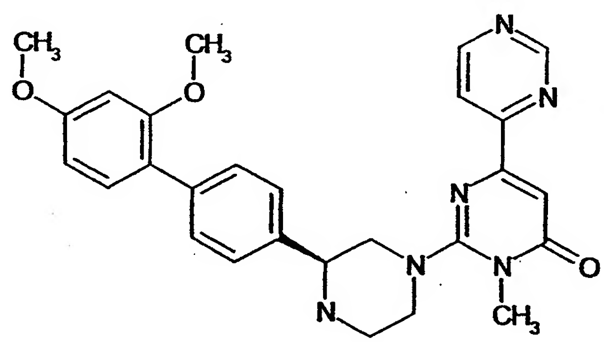
YA1558	
YA1559	
YA1560	

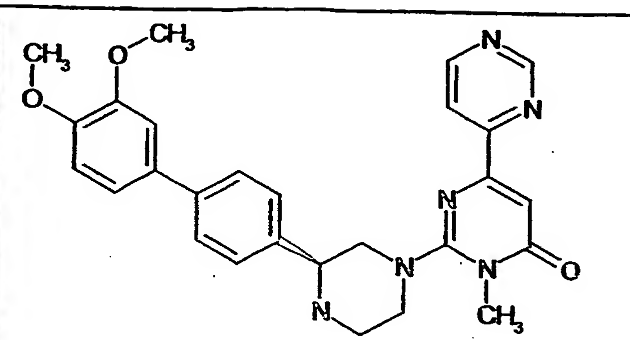
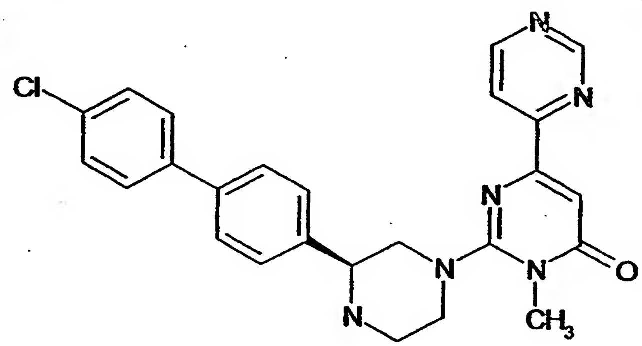
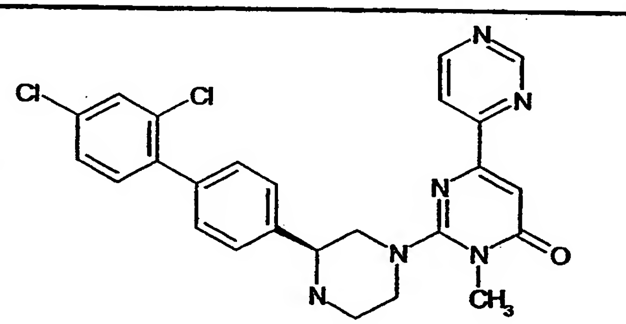
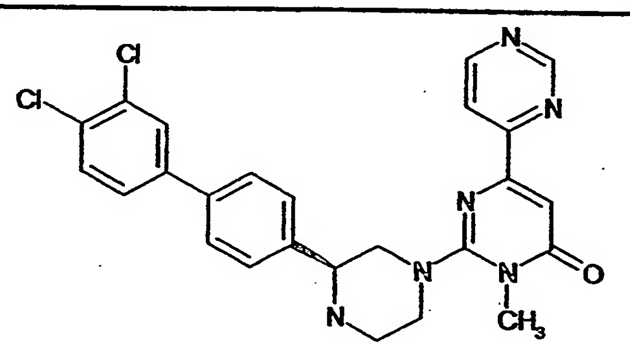
YA1561	
YA1562	
YA1563	
YA1564	

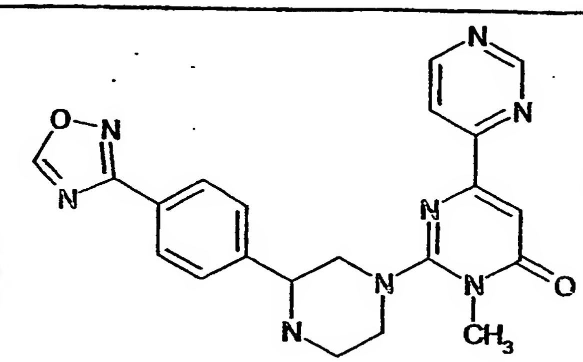
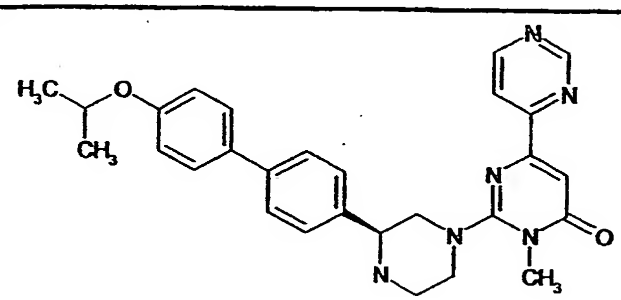
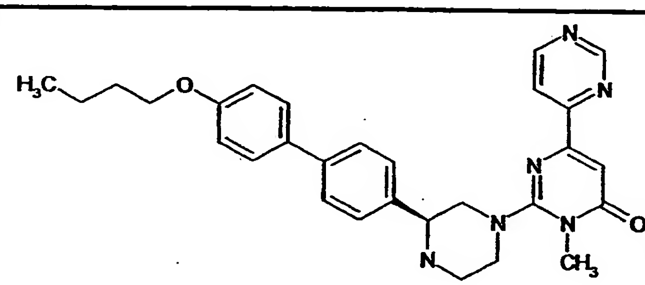
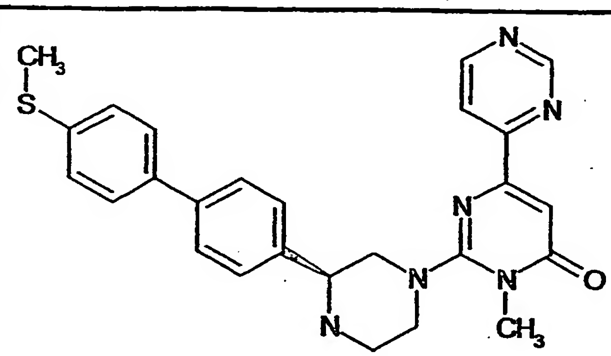
YA1565	
YA1566	
YA1567	
YA1568	

YA1569	
YA1570	
YA1571	
YA1572	

YA1573	
YA1574	
YA1575	

YA1576	
YA1577	
YA1578	

YA1579	
YA1580	
YA1581	
YA1582	

YA1583	
YA1584	
YA1585	
YA1586	

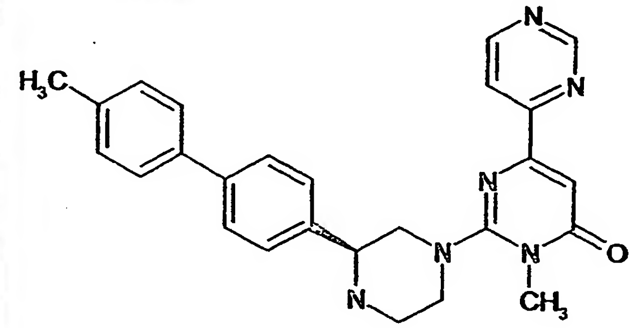
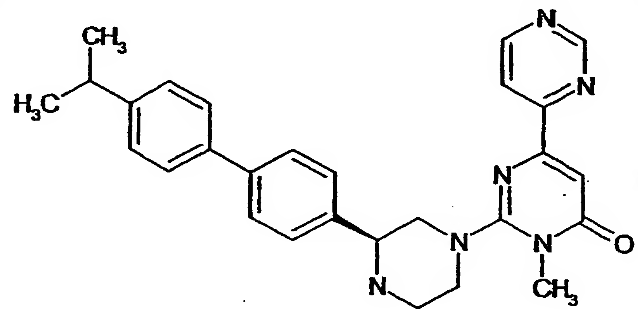
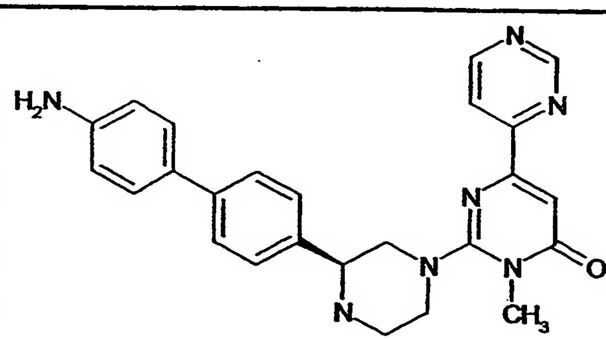
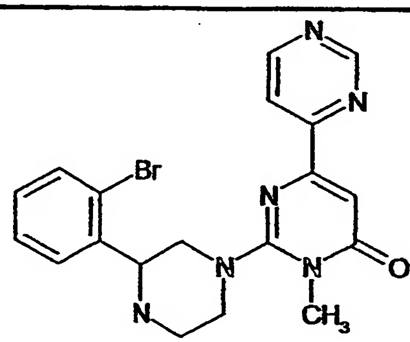
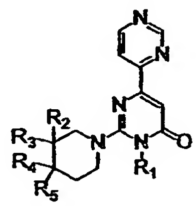
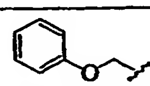
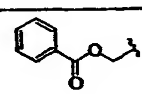
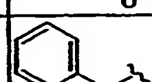
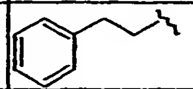
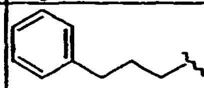
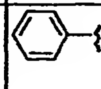
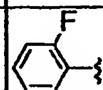
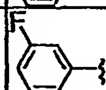
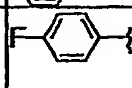
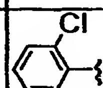
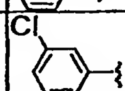
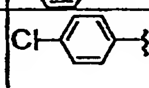
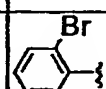
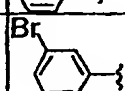
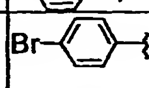
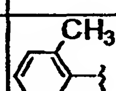
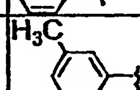
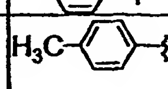
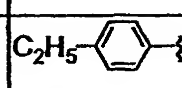
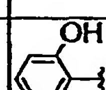
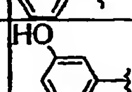
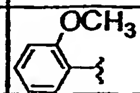
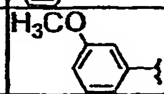
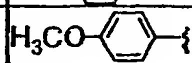
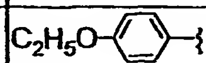
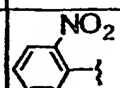
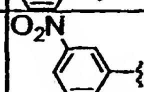
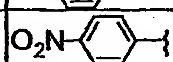
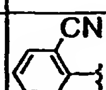
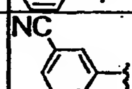
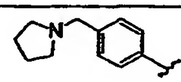
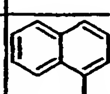
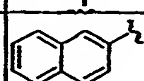
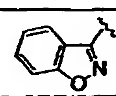
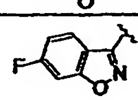
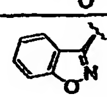
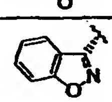
YA1587	
YA1588	
YA1589	
YA1590	

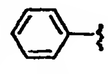
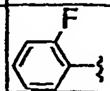
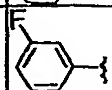
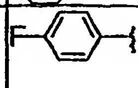
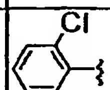
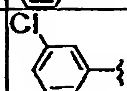
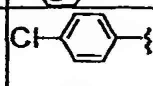
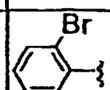
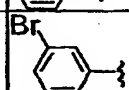
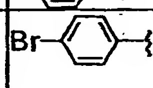
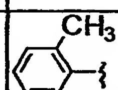
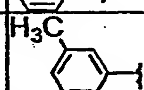
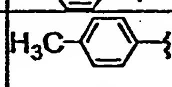
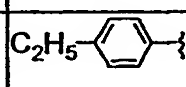
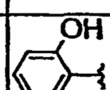
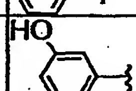
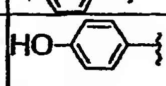
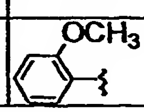
Table-4

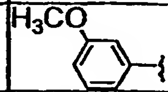
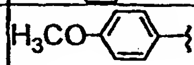
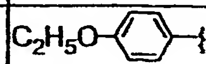
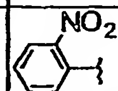
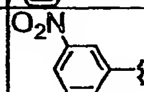
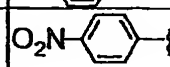
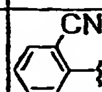
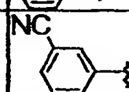
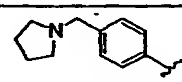
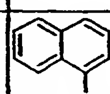
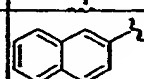
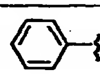
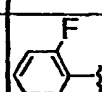
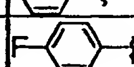
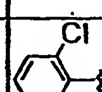
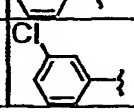


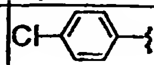
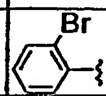
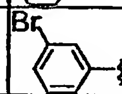
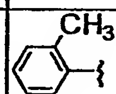
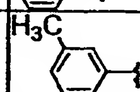
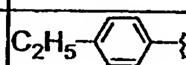
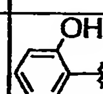
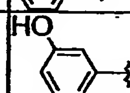
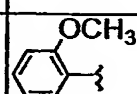
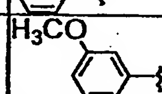
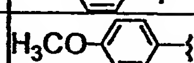
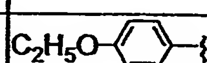
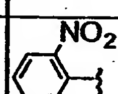
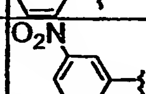
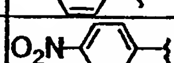
No.	R1	R2	R3	R4	R5
YB1	CH3-	CH3-	H	H	H
YB2	CH3-	CH3CH2-	H	H	H
YB3	CH3-		H	H	H
YB4	CH3-		H	H	H
YB5	CH3-		H	H	H
YB6	CH3-		H	H	H
YB7	CH3-		H	H	H
YB8	CH3-		H	H	H
YB9	CH3-		H	H	H
YB10	CH3-		H	H	H
YB11	CH3-		H	H	H
YB12	CH3-		H	H	H
YB13	CH3-		H	H	H
YB14	CH3-		H	H	H
YB15	CH3-		H	H	H

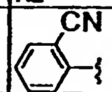
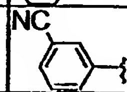
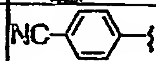
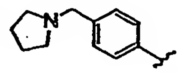
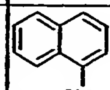
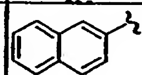
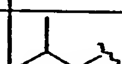
No.	R1	R2	R3	R4	R5
YB16	CH3–		H	H	H
YB17	CH3–		H	H	H
YB18	CH3–		H	H	H
YB19	CH3–		H	H	H
YB20	CH3–		H	H	H
YB21	CH3–		H	H	H
YB22	CH3–		H	H	H
YB23	CH3–		H	H	H
YB24	CH3–		H	H	H
YB25	CH3–		H	H	H
YB26	CH3–		H	H	H
YB27	CH3–		H	H	H
YB28	CH3–		H	H	H
YB29	CH3–		H	H	H
YB30	CH3–		H	H	H
YB31	CH3–		H	H	H
YB32	CH3–		H	H	H
YB33	CH3–		H	H	H

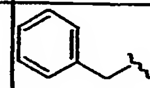
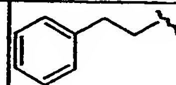
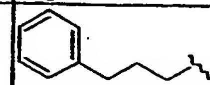
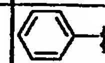
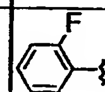
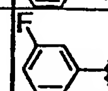
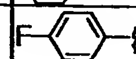
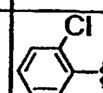
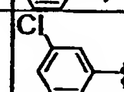
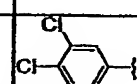
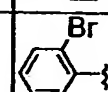
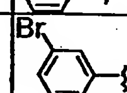
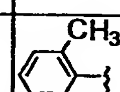
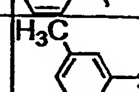
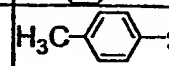
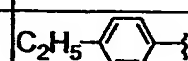
No.	R1	R2	R3	R4	R5
YB34	CH3–		H	H	H
YB35	CH3–		H	H	H
YB36	CH3–		H	H	H
YB37	CH3–		H	H	H
YB38	CH3–		H	H	H
YB39	CH3–		H	H	H
YB40	CH3–		H	H	H
YB41	CH3–		H	H	H
YB42	CH3–		H	H	H
YB43	CH3–		H	H	H
YB44	CH3–		H	H	H
YB45	CH3–		H	H	H
YB46	CH3–		H	H	H
YB47	CH3–		H	H	H
YB48	CH3–		H	H	H
YB49	CH3–		H	H	H
YB50	CH3–		H	H	H
YB51	CH3–		H	H	H

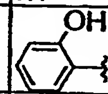
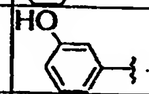
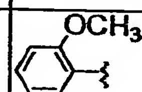
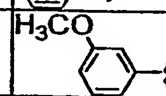
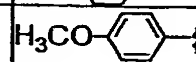
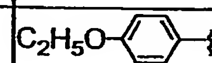
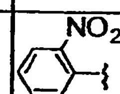
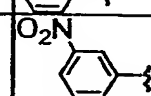
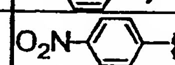
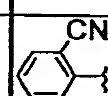
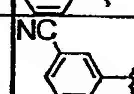
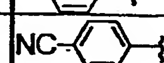
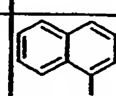
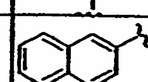
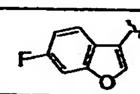
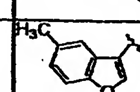
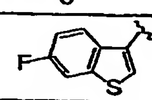
No.	R1	R2	R3	R4	R5
YB52	CH3–		OH	H	H
YB53	CH3–		OH	H	H
YB54	CH3–		OH	H	H
YB55	CH3–		OH	H	H
YB56	CH3–		OH	H	H
YB57	CH3–		OH	H	H
YB58	CH3–		OH	H	H
YB59	CH3–		OH	H	H
YB60	CH3–		OH	H	H
YB61	CH3–		OH	H	H
YB62	CH3–		OH	H	H
YB63	CH3–		OH	H	H
YB64	CH3–		OH	H	H
YB65	CH3–		OH	H	H
YB66	CH3–		OH	H	H
YB67	CH3–		OH	H	H
YB68	CH3–		OH	H	H
YB69	CH3–		OH	H	H

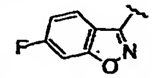
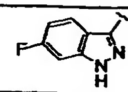
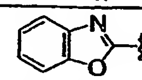
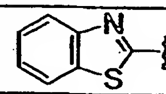
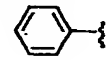
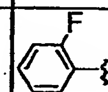
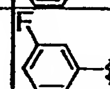
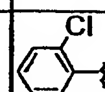
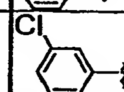
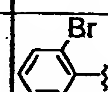
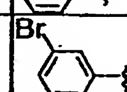
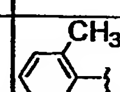
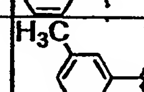
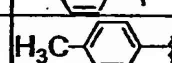
No.	R1	R2	R3	R4	R5
YB70	CH3-		OH	H	H
YB71	CH3-		OH	H	H
YB72	CH3-		OH	H	H
YB73	CH3-		OH	H	H
YB74	CH3-		OH	H	H
YB75	CH3-		OH	H	H
YB76	CH3-		OH	H	H
YB77	CH3-		OH	H	H
YB78	CH3-		OH	H	H
YB79	CH3-		OH	H	H
YB80	CH3-		OH	H	H
YB81	CH3-		OH	H	H
YB82	CH3-		CN	H	H
YB83	CH3-		CN	H	H
YB84	CH3-		CN	H	H
YB85	CH3-		CN	H	H
YB86	CH3-		CN	H	H
YB87	CH3-		CN	H	H

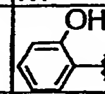
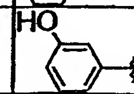
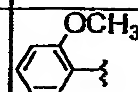
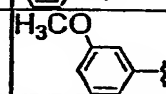
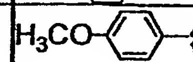
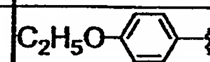
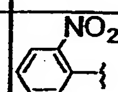
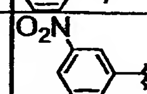
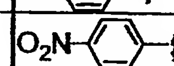
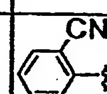
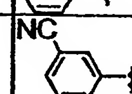
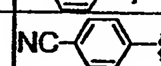
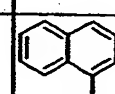
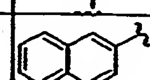
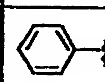
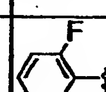
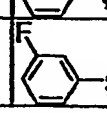
No.	R1	R2	R3	R4	R5
YB88	CH3-		CN	H	H
YB89	CH3-		CN	H	H
YB90	CH3-		CN	H	H
YB91	CH3-		CN	H	H
YB92	CH3-		CN	H	H
YB93	CH3-		CN	H	H
YB94	CH3-		CN	H	H
YB95	CH3-		CN	H	H
YB96	CH3-		CN	H	H
YB97	CH3-		CN	H	H
YB98	CH3-		CN	H	H
YB99	CH3-		CN	H	H
YB100	CH3-		CN	H	H
YB101	CH3-		CN	H	H
YB102	CH3-		CN	H	H
YB103	CH3-		CN	H	H
YB104	CH3-		CN	H	H
YB105	CH3-		CN	H	H

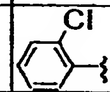
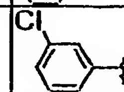
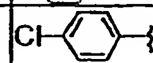
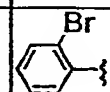
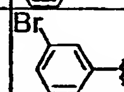
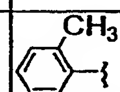
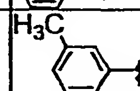
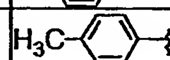
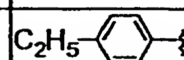
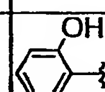
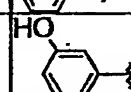
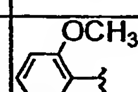
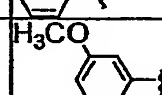
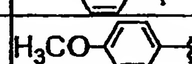
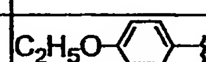
No.	R1	R2	R3	R4	R5
YB106	CH3–		CN	H	H
YB107	CH3–		CN	H	H
YB108	CH3–		CN	H	H
YB109	CH3–		CN	H	H
YB110	CH3–		CN	H	H
YB111	CH3–		CN	H	H
YB112	CH3–	H	H	CH3–	H
YB113	CH3–	H	H	CH3CH2–	H
YB114	CH3–	H	H		H
YB115	CH3–	H	H		H
YB116	CH3–	H	H		H
YB117	CH3–	H	H		H
YB118	CH3–	H	H		H
YB119	CH3–	H	H		H
YB120	CH3–	H	H		H
YB121	CH3–	H	H		H
YB122	CH3–	H	H		H
YB123	CH3–	H	H		H

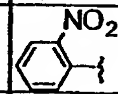
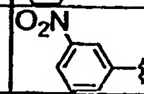
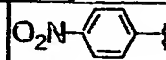
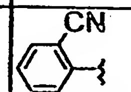
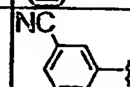
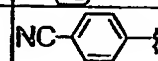
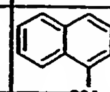
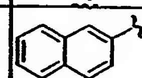
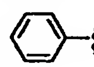
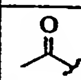
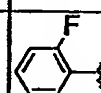
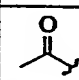
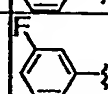
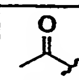
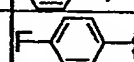
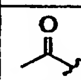
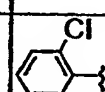
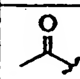
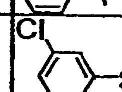
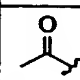
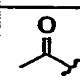
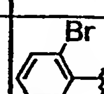
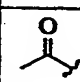
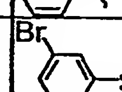
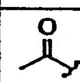
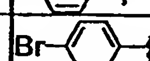
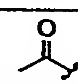
No.	R1	R2	R3	R4	R5
YB124	CH3–	H	H		H
YB125	CH3–	H	H		H
YB126	CH3–	H	H		H
YB127	CH3–	H	H		H
YB128	CH3–	H	H		H
YB129	CH3–	H	H		H
YB130	CH3–	H	H		H
YB131	CH3–	H	H		H
YB132	CH3–	H	H		H
YB133	CH3–	H	H		H
YB134	CH3–	H	H		H
YB135	CH3–	H	H		H
YB136	CH3–	H	H		H
YB137	CH3–	H	H		H
YB138	CH3–	H	H		H
YB139	CH3–	H	H		H
YB140	CH3–	H	H		H
YB141	CH3–	H	H		H

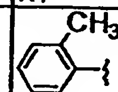
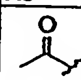
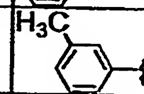
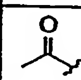
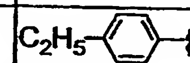
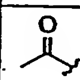
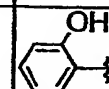
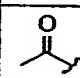
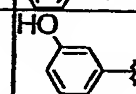
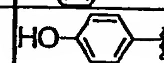
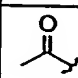
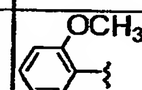
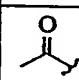
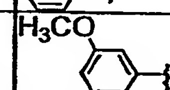
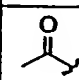
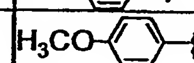
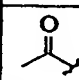
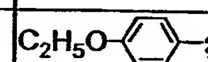
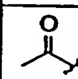
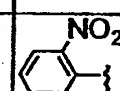
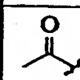
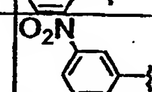
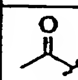
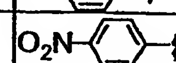
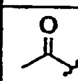
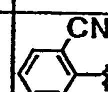
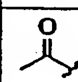
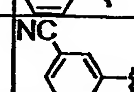
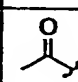
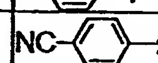
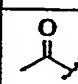
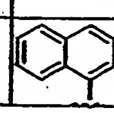
No.	R1	R2	R3	R4	R5
YB142	CH3–	H	H		H
YB143	CH3–	H	H		H
YB144	CH3–	H	H		H
YB145	CH3–	H	H		H
YB146	CH3–	H	H		H
YB147	CH3–	H	H		H
YB148	CH3–	H	H		H
YB149	CH3–	H	H		H
YB150	CH3–	H	H		H
YB151	CH3–	H	H		H
YB152	CH3–	H	H		H
YB153	CH3–	H	H		H
YB154	CH3–	H	H		H
YB155	CH3–	H	H		H
YB156	CH3–	H	H		H
YB157	CH3–	H	H		H
YB158	CH3–	H	H		H
YB159	CH3–	H	H		H

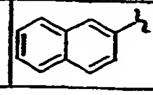
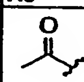
No.	R1	R2	R3	R4	R5
YB160	CH3-	H	H		H
YB161	CH3-	H	H		H
YB162	CH3-	H	H		H
YB163	CH3-	H	H		H
YB164	CH3-	H	H		OH
YB165	CH3-	H	H		OH
YB166	CH3-	H	H		OH
YB167	CH3-	H	H		OH
YB168	CH3-	H	H		OH
YB169	CH3-	H	H		OH
YB170	CH3-	H	H		OH
YB171	CH3-	H	H		OH
YB172	CH3-	H	H		OH
YB173	CH3-	H	H		OH
YB174	CH3-	H	H		OH
YB175	CH3-	H	H		OH
YB176	CH3-	H	H		OH
YB177	CH3-	H	H		OH

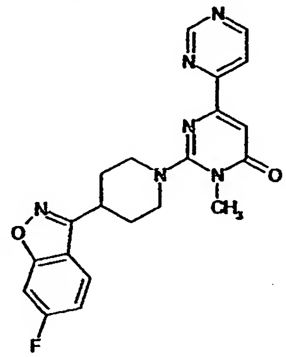
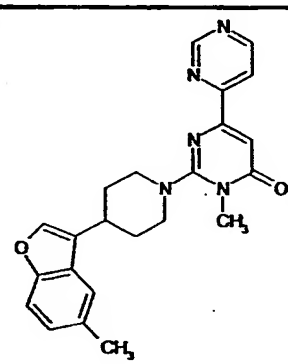
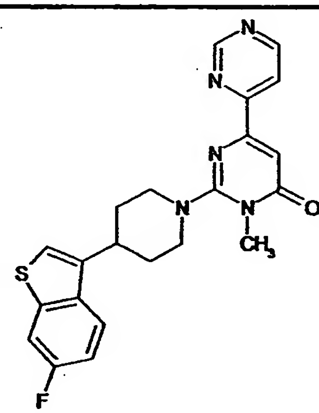
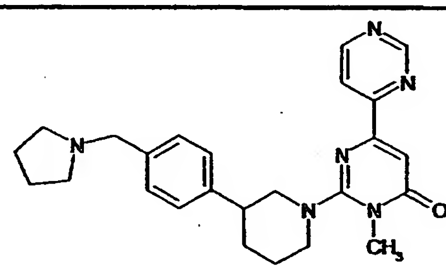
No.	R1	R2	R3	R4	R5
YB178	CH3–	H	H		OH
YB179	CH3–	H	H		OH
YB180	CH3–	H	H		OH
YB181	CH3–	H	H		OH
YB182	CH3–	H	H		OH
YB183	CH3–	H	H		OH
YB184	CH3–	H	H		OH
YB185	CH3–	H	H		OH
YB186	CH3–	H	H		OH
YB187	CH3–	H	H		OH
YB188	CH3–	H	H		OH
YB189	CH3–	H	H		OH
YB190	CH3–	H	H		OH
YB191	CH3–	H	H		OH
YB192	CH3–	H	H		OH
YB193	CH3–	H	H		CN
YB194	CH3–	H	H		CN
YB195	CH3–	H	H		CN

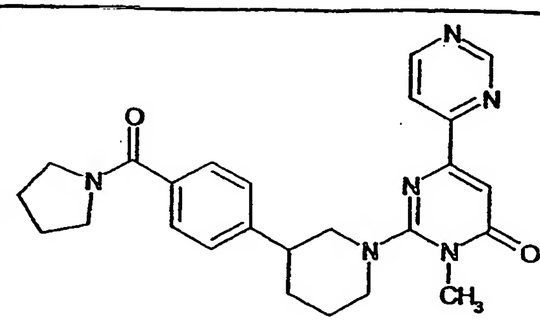
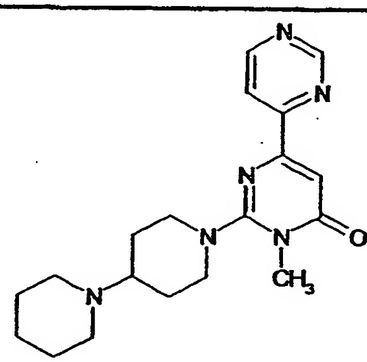
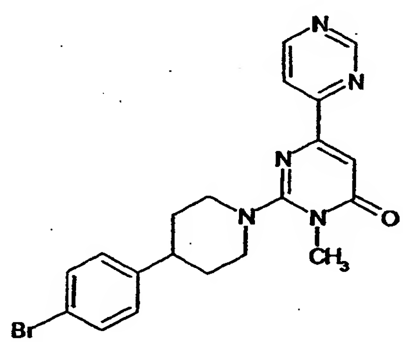
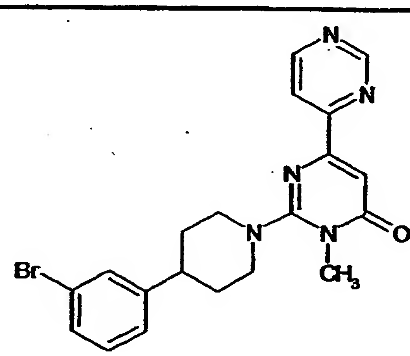
No.	R1	R2	R3	R4	R5
YB196	CH3-	H	H		CN
YB197	CH3-	H	H		CN
YB198	CH3-	H	H		CN
YB199	CH3-	H	H		CN
YB200	CH3-	H	H		CN
YB201	CH3-	H	H		CN
YB202	CH3-	H	H		CN
YB203	CH3-	H	H		CN
YB204	CH3-	H	H		CN
YB205	CH3-	H	H		CN
YB206	CH3-	H	H		CN
YB207	CH3-	H	H		CN
YB208	CH3-	H	H		CN
YB209	CH3-	H	H		CN
YB210	CH3-	H	H		CN
YB211	CH3-	H	H		CN
YB212	CH3-	H	H		CN
YB213	CH3-	H	H		CN

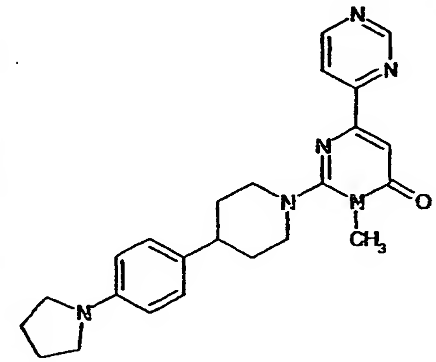
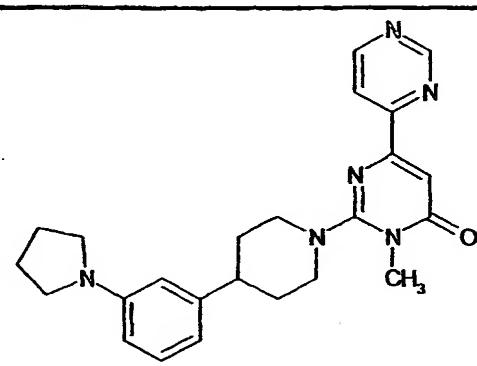
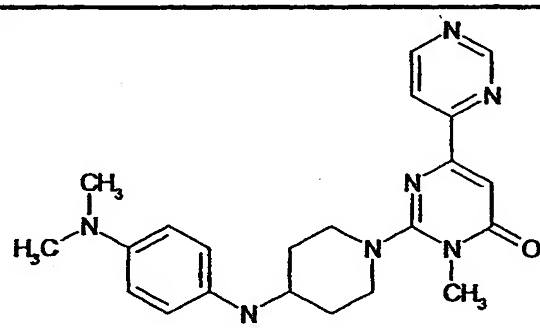
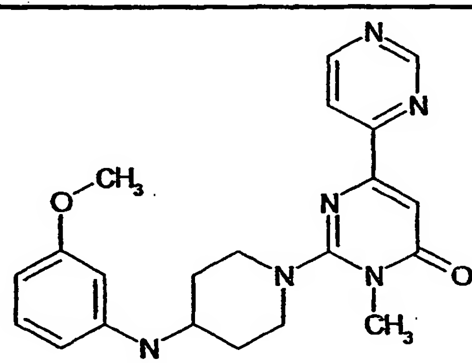
No.	R1	R2	R3	R4	R5
YB214	CH3–	H	H		CN
YB215	CH3–	H	H		CN
YB216	CH3–	H	H		CN
YB217	CH3–	H	H		CN
YB218	CH3–	H	H		CN
YB219	CH3–	H	H		CN
YB220	CH3–	H	H		CN
YB221	CH3–	H	H		CN
YB222	CH3–	H	H		
YB223	CH3–	H	H		
YB224	CH3–	H	H		
YB225	CH3–	H	H		
YB226	CH3–	H	H		
YB227	CH3–	H	H		
YB228	CH3–	H	H		
YB229	CH3–	H	H		
YB230	CH3–	H	H		
YB231	CH3–	H	H		

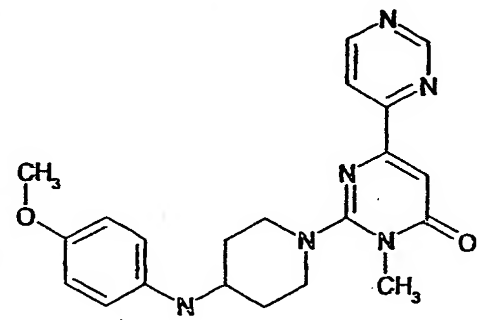
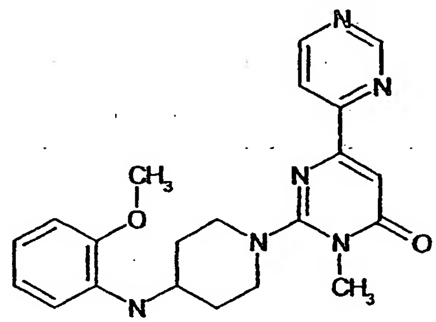
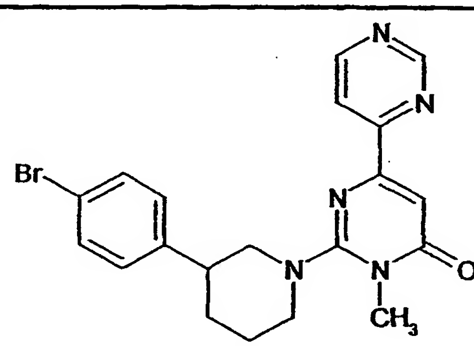
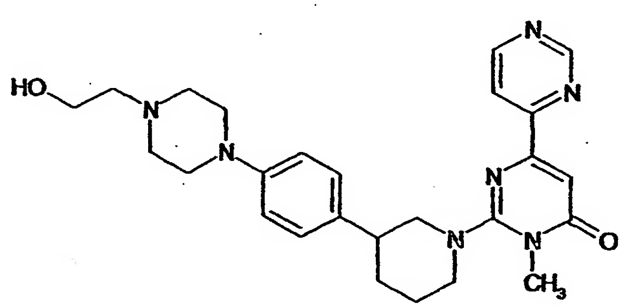
No.	R1	R2	R3	R4	R5
YB232	CH3–	H	H		
YB233	CH3–	H	H		
YB234	CH3–	H	H		
YB235	CH3–	H	H		
YB236	CH3–	H	H		
YB237	CH3–	H	H		
YB238	CH3–	H	H		
YB239	CH3–	H	H		
YB240	CH3–	H	H		
YB241	CH3–	H	H		
YB242	CH3–	H	H		
YB243	CH3–	H	H		
YB244	CH3–	H	H		
YB245	CH3–	H	H		
YB246	CH3–	H	H		
YB247	CH3–	H	H		
YB248	CH3–	H	H		
YB249	CH3–	H	H		

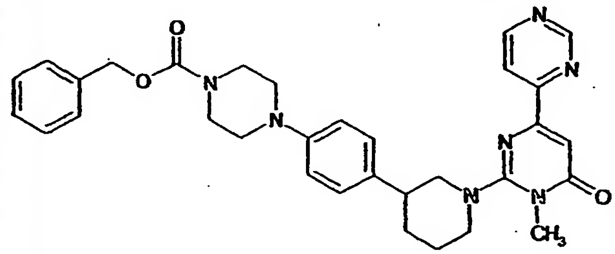
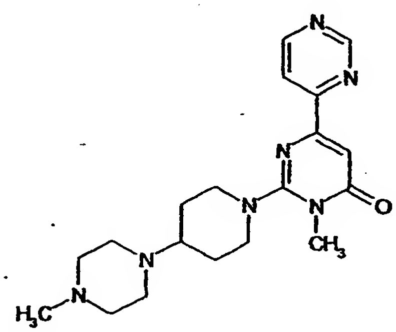
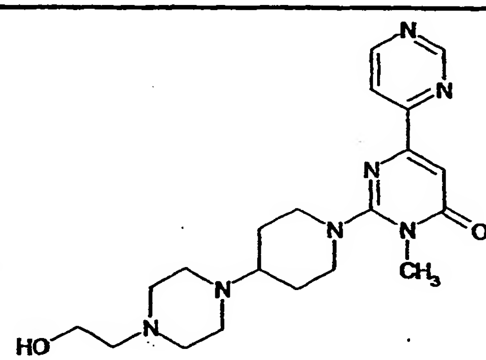
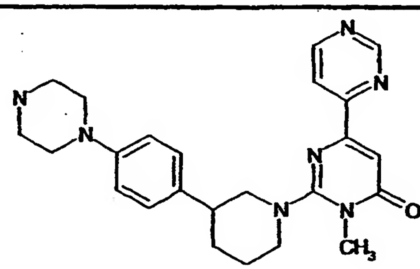
No.	R1	R2	R3	R4	R5
YB250	CH3-	H	H		

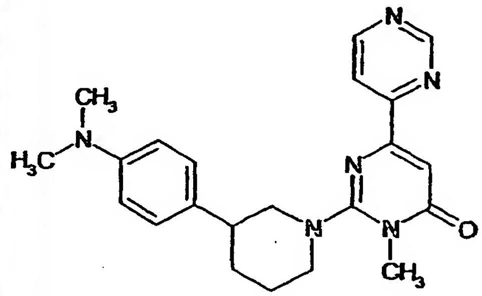
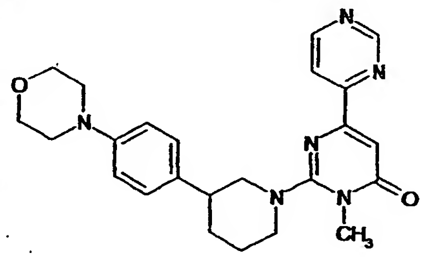
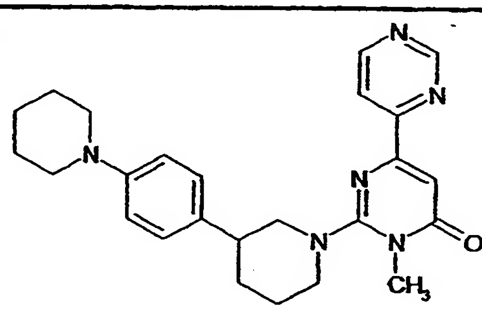
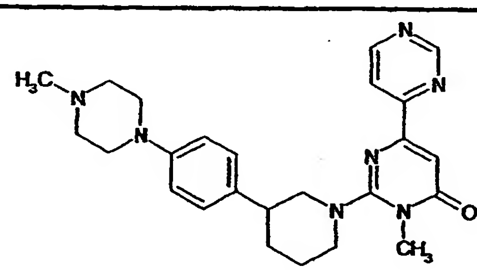
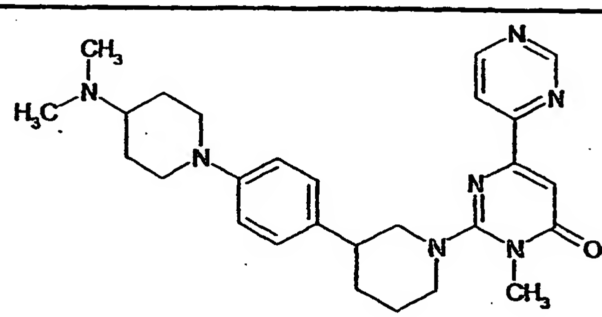
No.	STRUCTURE
YB251	
YB252	
YB253	
YB254	

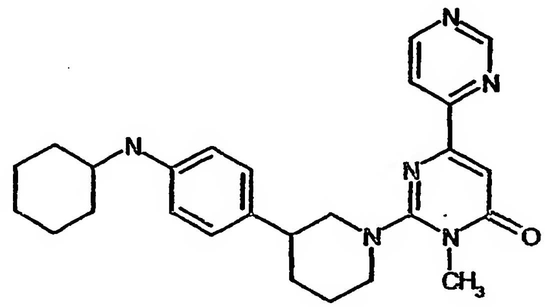
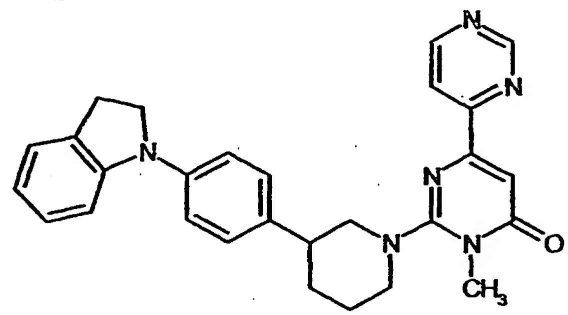
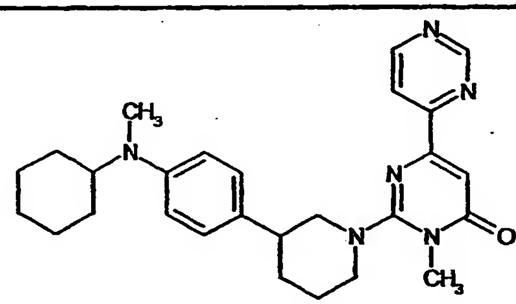
YB255	
YB256	
YB257	
YB258	

YB259	
YB260	
YB261	
YB262	

YB263	
YB264	
YB265	
YB266	

YB272	
YB273	
YB274	
YB275	

YB267	
YB268	
YB269	
YB270	
YB271	

YB276	
YB277	
YB278	

Particularly preferred compounds of the present invention represented by formula (I) include:

2-(3-Phenylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Methylphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Methylphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Methylphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Ethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(5-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-3-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chloro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-2-methylphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Fluoro-6-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(5-Bromo-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Bromo-4-fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Chloro-6-fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Difluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,6-Difluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,6-Dichlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3,4-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,5-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,6-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Difluoro-6-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(5-Cyano-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Cyano-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(1-Naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,3-Dihydrobenzofuran-7-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(Benzofuran-2-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(Benzofuran-2-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Pyrrolidin-1-yl-methyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-methoxy-4-(pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-methoxy-5-(pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Phenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(4-Fluorophenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(4-Methoxyphenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(2-Methoxyphenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Morpholin-4-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(4-Methylpiperazin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Phenylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Benzylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Benzoylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-(1,2-Benzisothiazol-3-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Methyl-3-phenylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-2-methoxyphenyl)-4-methylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-Fluoro-2-methoxyphenyl)-4-methylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-Fluoro-2-methoxyphenyl)-4-methylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Acetyl-3-(4-fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Benzyl-3-(4-fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Benzyl-3-(ethoxycarbonyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-methyl-3-(1-naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(5,5-Dimethyl-3-(2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-Phenylpiperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluorophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Fluorophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Fluorophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chlorophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Bromophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Methoxyphenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Methoxyphenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Methoxyphenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-((Pyrrolidin-1-yl)methyl)phenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-(Pyrrolidin-1-yl-methyl)phenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-(Pyrrolidin-1-yl-methyl)phenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-Hydroxy-3-phenylpiperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-Phenylpiperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Ethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(6-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(5-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chloro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(5-Bromo-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2,6-Dichlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3,4-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2,5-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2,6-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Difluoro-6-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(1-Naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2,3-Dihydrobenzofuran-7-yl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(Benzofuran-2-yl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Pyrrolidin-1-yl-methyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-methoxy-4-(pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-methoxy-5-(pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Phenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(4-Fluorophenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(4-Methoxyphenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(2-Methoxyphenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Morpholin-4-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(4-Methylpiperazin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-2-methoxyphenyl)-4-methylpiperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-Fluoro-2-methoxyphenyl)-4-methylpiperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-Fluoro-2-methoxyphenyl)-4-methylpiperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(4-Acetyl-3-(4-fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(4-Benzyl-3-(4-fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(4-(4-Fluorophenyl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(4-Cyano-4-phenylpiperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(4-(6-Fluorobenofuran-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(Benzoisoxazol-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(Benzoisoxazol-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(Benzoisoxazol-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(6-Fluorobenzoisoxazol-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

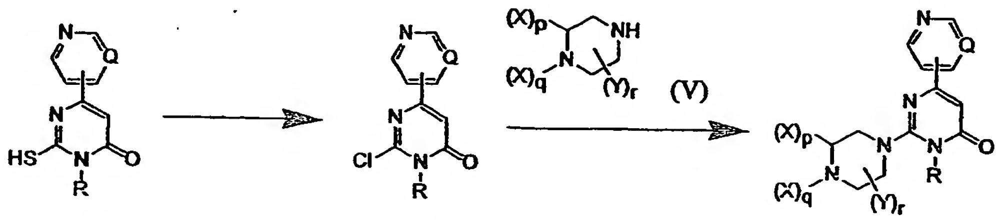
2-(4-(6-Fluorobenzoisoxazol-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(4-(5-Methylbenzofuran-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one; and

2-(4-(6-Fluorobenzothiophene-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one.

Salts of the aforementioned preferred compound, and solvates or hydrates of the aforementioned compounds and salts thereof are also preferred.

The 3-substituted-4-pyrimidone compounds represented by the aforementioned formula (I) can be prepared, for example, according to the method explained below.



(III) (IV) (II)

(In the above scheme, definitions of Q, R, X and Y are the same as those already described.)

The 2-thiopyrimidone represented by the above formula (III) is prepared easily by a modification of the method described in EP 354,179. The reaction may be carried out in the presence of a base such as sodium hydroxide, potassium hydroxide, sodium methoxide, sodium ethoxide, potassium tert-butoxide, sodium carbonate, sodium hydrogencarbonate, potassium carbonate, triethylamine, diisopropylethylamine, and 1,8-diazabicyclo[5,4,0]undec-7-en for 1 to 100 hours at a suitable temperature ranging from 0 ℃ to 200 ℃ under nitrogen or argon atmosphere or under ordinary air to afford the desired compound (III). Examples of a solvent for the reactions include, for example, alcoholic solvent such as methanol, ethanol, 1-propanol, isopropanol, tert-butanol, ethylene glycol, propylene glycol; etheric solvents such as diethyl ether, tert-butyl methyl ether, tetrahydrofuran, isopropyl ether; hydrocarbonic solvents such as benzene, toluene, xylene; halogenated hydrocarbonic solvents such as dichloromethane, chloroform, dichloroethane; aprotic polar solvents such as formamide, N,N-dimethylformamide, N,N-dimethylacetamide, N-methylpyrrolidone, dimethyl sulfoxide, sulfolane, hexamethylphosphoric triamide, water and the like. Generally, a single solvent or a mixture of two or more solvents may be used so as to be suitable to a base used.

Then the 2-thiopyrimidone derivative (III) is transformed into the 2-chloropyrimidone (IV) by a chlorinating agent. The reaction time and temperature depend on the chlorinating agent used.. Examples of a chlorinating agent for the reactions include, for example, thionyl chloride, thionyl chloride and

dimethylformamide, phosphorus oxychloride, phosphorus oxychloride and dimethylformamide, oxalyl chloride, phosphorous oxychloride and dimethylformamide, and phosphorus pentachloride.

The amine represented by the above formula (V) may be prepared by a modification of the method described in Japanese Patent Unexamined Publication [Kokai] No. 52-139085/1977 or according to well-known methods of one skilled in the art.

Then the chloride derivative (IV) is allowed to react with the amine (V) or salts thereof in the presence of a base such as sodium hydroxide, potassium hydroxide, sodium methoxide, sodium ethoxide, sodium carbonate, sodium hydrogencarbonate, potassium carbonate, triethylamine, diisopropylethylamine, and 1,8-diazabicyclo[5,4,0]undec-7-en for 0.1 to 100 hours at a suitable temperature ranging from 0 ℃ to 200 ℃ under nitrogen or argon atmosphere or under ordinary air to afford the desired compound (II).

Examples of a solvent for the reactions include, for example, alcoholic solvent such as methanol, ethanol, 1-propanol, isopropanol, tert-butanol, ethylene glycol, propylene glycol; etheric solvents such as diethyl ether, tert-butyl methyl ether, tetrahydrofuran, isopropyl ether; hydrocarbonic solvents such as benzene, toluene, xylene; halogenated hydrocarbonic solvents such as dichloromethane, chloroform, dichloroethane; aprotic polar solvents such as formamide, N,N-dimethylformamide, N,N-dimethylacetamide, N-methylpyrrolidone, dimethyl sulfoxide, sulfolane, hexamethylphosphoric triamide, water and the like. Generally, a single solvent or a mixture of two or more solvents may be used so as to be suitable to a base used.

The compounds of the present invention have inhibitory activity against TPK1, and they inhibit TPK1 activity in neurodegenerative diseases like Alzheimer disease, thereby suppress the neurotoxicity of Aβ and the formation of PHF and inhibit the nerve cell death. Accordingly, the compounds of the present invention

are useful as an active ingredient of a medicament which radically enables preventive and/or therapeutic treatment of Alzheimer disease. In addition, the compounds of the present invention are also useful as an active ingredient of a medicament for preventive and/or therapeutic treatment of ischemic cerebrovascular accidents, Down syndrome, cerebral bleeding due to solitary cerebral amyloid angiopathy, progressive supranuclear palsy, subacute sclerosing panencephalitis, postencephalitic parkinsonism, pugilistic encephalosis, Guam parkinsonism-dementia complex, Lewy body disease, Pick's disease, corticobasal degeneration frontotemporal dementia, vascular dementia, acute stroke and traumatic injuries, brain and spinal cord trauma, peripheral neuropathies, retinopathies and glaucoma, non-insulin dependent diabetes (such as diabetes type II), and obesity, manic depressive illness, schizophrenia, alopecia, cancers such as breast cancer, non-small cell lung carcinoma, thyroid cancer, T or B-cell leukemia and several virus-induced tumors.

As the active ingredient of the medicament of the present invention, a substance may be used which is selected from the group consisting of the compound represented by the aforementioned formula (I) and pharmacologically acceptable salts thereof, and solvates thereof and hydrates thereof. The substance, per se, may be administered as the medicament of the present invention, however, it is desirable to administer the medicament in a form of a pharmaceutical composition which comprises the aforementioned substance as an active ingredient and one or more of pharmaceutical additives. As the active ingredient of the medicament of the present invention, two or more of the aforementioned substance may be used in combination. The above pharmaceutical composition may be supplemented with an active ingredient of other medicament for the treatment of, for example, Alzheimer disease, vascular dementia, acute stroke and traumatic injuries, brain and spinal cord trauma, peripheral neuropathies, retinopathies and glaucoma, non-insulin dependent diabetes (such as diabetes type II), and obesity, manic depressive illness,

schizophrenia, alopecia, cancers such as breast cancer, non-small cell lung carcinoma, thyroid cancer, T or B-cell leukemia and several virus-induced tumors.

A type of the pharmaceutical composition is not particularly limited, and the composition may be provided as any formulation for oral or parenteral administration. For example, the pharmaceutical composition may be formulated, for example, in the form of pharmaceutical compositions for oral administration such as granules, fine granules, powders, hard capsules, soft capsules, syrups, emulsions, suspensions, solutions and the like, or in the form of pharmaceutical compositions for parenteral administrations such as injections for intravenous, intramuscular, or subcutaneous administration, drip infusions, transdermal preparations, transmucosal preparations, nasal drops, inhalants, suppositories and the like. Injections or drip infusions may be prepared as powdery preparations such as in the form of lyophilized preparations, and may be used by dissolving just before use in an appropriate aqueous medium such as physiological saline. Sustained-release preparations such as those coated with a polymer may be directly administered intracerebrally.

Types of pharmaceutical additives used for the manufacture of the pharmaceutical composition, content rations of the pharmaceutical additives relative to the active ingredient, and methods for preparing the pharmaceutical composition may be appropriately chosen by those skilled in the art. Inorganic or organic substances, or solid or liquid substances may be used as pharmaceutical additives. Generally, the pharmaceutical additives may be incorporated in a ratio ranging from 1% by weight to 90% by weight based on the weight of an active ingredient.

Examples of excipients used for the preparation of solid pharmaceutical compositions include, for example, lactose, sucrose, starch, talc, cellulose, dextrin, kaolin, calcium carbonate and the like. For the preparation of liquid compositions for oral administration, a conventional inert diluent such as water or a vegetable oil

may be used. The liquid composition may contain, in addition to the inert diluent, auxiliaries such as moistening agents, suspension aids, sweeteners, aromatics, colorants, and preservatives. The liquid composition may be filled in capsules made of an absorbable material such as gelatin. Examples of solvents or suspension mediums used for the preparation of compositions for parenteral administration, e.g. injections, suppositories, include water, propylene glycol, polyethylene glycol, benzyl alcohol, ethyl oleate, lecithin and the like. Examples of base materials used for suppositories include, for example, cacao butter, emulsified cacao butter, lauric lipid, witepsol.

Dose and frequency of administration of the medicament of the present invention are not particularly limited, and they may be appropriately chosen depending on conditions such as a purpose of preventive and/or therapeutic treatment, a type of a disease, the body weight or age of a patient, severity of a disease and the like. Generally, a daily dose for oral administration to an adult may be 0.01 to 1,000 mg (the weight of an active ingredient), and the dose may be administered once a day or several times a day as divided portions, or once in several days. When the medicament is used as an injection, administrations may preferably be performed continuously or intermittently in a daily dose of 0.001 to 100 mg (the weight of an active ingredient) to an adult.

Examples

The present invention will be explained more specifically with reference to examples. However, the scope of the present invention is not limited to the following examples. The compound numbers in the examples correspond to those in the table above.

Reference Example 1: Synthesis of 2-mercapto-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one

A solution of ethyl 3-oxo-3-(4-pyridyl)propionate (29.0 g, 150 mmol), N-methyl thiourea (40.6 g, 450 mmol) and 1,8-diazabicyclo[5,4,0]-7-undecene (22.4 ml, 150 mmol) was refluxed for 4 hours and the solution of methanesulfonic acid (14.4 g, 150 mmol) in water (50 ml) was added after cooling by ice-water. The precipitate was washed with water, filtered and dried to give the title compound (23.7 g, 72%).

^{1}H-NMR (DMSO-d_6) δ : 3.58(s, 3H), 6.40(s, 1H), 7.72(dd, J=1.8, 4.5Hz, 2H), 8.73(dd, J=1.5, 4.8Hz, 2H), 12.92(brd, 1H).

Reference Example 2: Synthesis of 2-chloro-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one

Phosphorous oxychloride (26.11g, 170 mmol) was added to dimethyl-formamide(180 ml) and stirred 20 min. 2-Mercapto-3-methyl-6-(4-pyridyl)-pyrimidine-4-one (24.15 g, 110 mmol) was added to the solution and stirred 5 min and then stirred at 70℃ for 2 hours. Ethyl acetate (630 ml) was added to the ice-cooled solution and precipitate was collected by filtration after stirring for 20 minutes. After drying, the precipitate was dissolved in water (400 ml) and pH was adjusted to 10 by using aqueous sodium hydroxide. The precipitate was washed with water, filtered and dried to give the title compound (18.82 g, 77%).

^{1}H-NMR ($CDCl_3$) δ : 3.72(s, 3H), 6.90(s, 1H), 7.78(dd, J=1.7, 4.5Hz, 2H), 8.75(dd, J=1.6, 4.5Hz, 2H).

Reference Example 3: Synthesis of 2-mercapto-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one

A solution of ethyl 3-oxo-3-(4-pyrimidyl)propionate (34.1 g, 176 mmol), N-methyl thiourea (47.5 g, 527 mmol) and 1,8-diazabicyclo[5,4,0]-7-undecene (26.3 ml, 176 mmol) in ethanol (340 ml) was refluxed for 2 hours and the solution of methanesulfonic acid (16.9 g, 176 mmol) in water (70 ml) was added after cooling by

ice-water. The precipitate was washed with water, filtered and dried to give the title compound (30.2 g, 78%).

^{1}H-NMR (DMSO-d_6) δ : 3.56(s, 3H), 6.88(s, 1H), 8.24(dd, J=1.2, 5.4 Hz, 2H), 9.05 (dd, J=5.4 Hz, 1H), 11.94(s, 1H).

Reference Example 4: Synthesis of 2-chloro-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one

Phosphorous oxychloride (4.60 g, 30 mmol) was added to dimethylformamide(32 ml) and stirred for 20 min at 0℃. 2-Mercapto-3-methyl-6-(4-pyrimidyl)-3H-pyrimidine-4-one(4.40 g, 20 mmol) was added to the solution and stirred 5 min and then stirred at 70℃ for 2 hours. The reaction mixture was poured into ice water, neutralized by solid potassium carbonate, and extracted with ethyl acetate. The organic layer was washed with brine, dried over sodium sulfate, and evaporated under reduced pressure. Purification of the residue by silica gel chromatography (ethyl acetate) gave the title compound (1.20 g, 27%).

^{1}H-NMR ($CDCl_3$) δ : 3.74(s, 3H), 7.56(s, 1H), 8.18(d, J=5.1 Hz, 1H), 8.92(d, J=5.1 Hz, 1H), 9.30(s, 1H).

MS[M+H]$^+$: 223.

Example 1: Synthesis of 2-(2-(4-fluoro-2-methoxyphenyl)piperazin-4-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one dihydrochloride (No. XA468)

A solution of 2-bromo-5-fluoroanisole (11.8 g, 57.6 mmol) in tetrahydrofuran (60 ml) was dropped into the magnesium (1.40 g, 57.6 mmol) in refluxed tetrahydrofuran (32 ml) containing small amount of 1,2-dibromoethane and refluxed for 15 min. After addition of tetrehydrofuran (50 ml), the solution was cooled to –78 ℃ and diethyl oxalate (7.41 g, 50.7 mmol) in diethyl ether (50 ml) was dropped into the solution. After stirring at same temperature for 30 min, the solution was warmed to -10℃ and 1N aqueous hydrogen chloride (50 ml) and water

were added. Organic layer was extracted with diethyl ether, washed with brine and dried over magnesium sulfate. After removal of the solvent under reduced pressure, purification of the residue by silica gel column chromatography (eluent: hexane/ethyl acetate = 5/2) gave ethyl 2-(4-fluoro-2-methoxyphenyl)-2-oxoacetate (6.80g, 59%)

^{1}H-NMR ($CDCl_3$) δ : 1.40(3H, t, J=7.1 Hz),3.87(3H, s), 4.89(2H, q, J=7.1Hz), 6.68(1H, d, J=10.5 Hz), 6.77-6.81(1H, m), 7.91-7.95(1H, m).

Ethylenediamine (0.60 g, 10.0 mmol) was added to a solution of ethyl 2-(4-fluoro-2-methoxyphenyl)-2-oxoacetate (2.26 g, 10.0 mmol) in ethanol(30 ml) and refluxed 4 hr. After removal of the solvent under reduced pressure, residue was washed with ethanol-diethyl ether to give 5,6-dihydro-3-(4-fluoro-2-methoxyphenyl)pyrazinone (1.76 g, 79%).

^{1}H-NMR ($CDCl_3$) δ : 3.50-3.56 (2H, m), 3.81 (3H, s), 3.88-3.92 (2H, m), 6.65(1H, d, J=11.0 Hz), 6.70-6.76 (1H, m), 6.89(1H, bs), 7.36-7.40(1H, m).

5,6-Dihydro-3-(4-fluoro-2-methoxyphenyl)pyrazinone was added to the solution of lithium aluminium hydride (0.46 g, 12 mmol) in diethyl ether (25 ml) and refluxed for 6 hr. Water (0.48 ml), 15% sodium hydroxide solution (0.48 ml) and again water (1.21 ml) were added to the ice-cooled solution and the precipitate was filtered and washed with dichloromethane. Combined organic layer was evaporated to give 2-(4-fluoro-2-methoxyphenyl)piperazine (0.83 g, 99%).

^{1}H-NMR ($CDCl_3$) δ : 2.02(2H, s), 2.57-2.63 (1H, m), 2.80-2.89 (1H, m), 2.92-2.99 (2H, m), 3.06-3.12 (2H, m), 3.80(3H, s), 4.06 (1H, d, J=10.0 Hz), 6.56-6.65 (2H, m), 7.40 (1H, t, J=7.8 Hz).

2-Chloro-3-methyl-6-(4-pyridyl)-pyrimidin-4-one (222 mg, 1.0 mmol) was added to an ice-cooled solution of 2-(4-fluoro-2-methoxyphenyl)piperazine (210 mg, 1.0 mmol), triethylamine (0.15 ml, 1.1 mmol) in N,N-dimethylformamide (10 ml) and stirred at that temperature for 1 hr and then at room temperature for 2 hr. Next day, reaction was quenched by ice-water and the filtrate was washed with

water and dried to give 2-(2-(4-fluoro-2-methoxyphenyl)piperazin-4-yl)-3-methyl-6-(4-pyridyl)-pyrimidin-4-one (246 mg, 62%).

^{1}H-NMR ($CDCl_3$) δ : 2.89-2.96 (1H, m), 3.19-3.31 (3H, m), 3.59 (3H, s), 3.62-3.74 (2H, m), 3.85 (3H, s), 4.39-4.44 (1H, m), 6.63-6.71 (2H, m), 6.67 (1H, s), 7.51-7.55 (1H, m), 7.81 (2H, dd, J=1.7, 4.6 Hz), 8.71 (2H, dd, J=1.7, 4.6 Hz).

4N Hydrogen chloride in 1,4-dioxane (0.4 ml) was added to the solution of 2-(2-(4-fluoro-2-methoxyphenyl)piperazin-4-yl)-3-methyl-6-(4-pyridyl)-pyrimidin-4-one (217 mg, 0.6 mmol) in dichloromethane (5 ml) and stirred for 15 min. After addition of diethyl ether, filtration and wash with diethyl ether and dryness gave the title compound (260 mg, quant.).

Example 2: Synthesis of 2-(2-(4-methoxyphenyl)-piperazine-4-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one dihydrochloride (No. XA393)

Dimethylslufoxide (50 ml) solution of 4-methyoxyphenacylbromide (9.94 g, 43.4 mmol) and water (1.6 ml, 88.8 mmol) were stirred at 50℃ for 2.5 hr. Water was added and the solution was extracted with ethyl acetate 3 times and washed with brine and then dried over sodium sulfate. Removal of the solvent gave 4-methoxyphenylglyoxal (8.30 g, quant.).

^{1}H-NMR (DMSO) δ : 3.84 (3H, s), 6.60-6.69 (1H, m), 7.04 (2H, d, J=8.8 Hz), 8.05 (2H, d, J=9.1 Hz).

Methanol (5 ml) solution of ethylenediamine (3.74 g, 62.29 mmol) was added to the ice-cooled solution of 4-methoxyphenylglyoxal (8.30 g, 45.5 mmol) in methanol (100 ml) and tetrahydrofuran (50 ml) and stirred for 10 min. After cooling to 0℃, sodium tetrahydroborate (6.14 g, 162.2 mmol) and additional methanol (50 ml) was added and stirred overnight. After removal of the solvent, aqueous sodium hydroxide was added and was extracted with dichloromethane three times and washed with brine and dried over sodium sulfate. After removal of the solvent, purification of the residue by silica gel column chromatography (eluent;

dichloromethane/ethanol/diethylamine = 20/2/1) gave 2-(4-methoxypheny)-piperazine (3.96 g, 45%).

^{1}H-NMR ($CDCl_3$) δ : 2.69(1H, dd, J=10.3, 11.9 Hz), 2.80-3.01(4H, m), 3.07-3.11 (1H, m), 3.68-3.73(1H, m), 3.79(3H, s), 6.84-6.88 (2H, m), 7.27-7.32 (2H, m).

A solution of triethylamine (697 mg, 6.9 mmol), 2-(4-methoxyphenyl)-piperazine (430 mg, tetrahydrofuran (10 ml) was stirred at room temperature for 30 min and at 50℃ for 3 hr. Solvent was removed under reduced pressure, and 1N aqueous sodium hydroxide solution was added to the residue and extracted by dichloromethane three times and washed with brine and dried over sodium sulfate. After removal of the solvent under reduced pressure, the residue was purified by silica gel column chromatography (eluent; dichloromethane/ethanol = 10/1) to give 2-(2-(4-methoxyphenyl)-piperazine-4-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one (594 mg, 76%)

^{1}H-NMR ($CDCl_3$) δ : 3.02 (1H, dd, J=10.8, 12.7 Hz), 3.18-3.25 (3H, m), 3.55 (3H, s), 3.57-3.67 (2H, m), 3..82 (3H, s), 3.98(1H, dd, J=2.7, 10.8 Hz), 6.67 (1H, s), 6.92 (2H, d, J=8.7 Hz), 7.37 (2H, d, J=8.7 Hz), 7.80 (2H, d, J=6.0 Hz), 8.71 (2H, d, J=6.0 Hz).

4N Hydrogen chloride in ethyl acetate (5 ml) was added to the solution of 2-(2-(4-methoxyphenyl)-piperazine-4-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one (594 mg, 1.6 mmol) in dichloromethane (5 ml) and stirred for 1 hr. Wash with ethyl acetate after removal of the solvent and dryness gave the title compound (683 mg, 96%).

Example 3: Synthesis of 2-(2-(4-chlorophenyl)-piperazine-4-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one hydrochloride (No. XA371)

Mixture of methyl (4-chlorophenyl)acetate (5.10 g, 27.6 mmol) and N-bromosuccinimide (5.16 g, 29 mmol) in carbon tetrachloride was treated by Hg lamp. After filtration, solvent was removed under reduced pressure and the residue was dissolved in methanol. Ethylenediamine (2.03 ml, 30.4 mmol) and

triethylamine (2.06 ml, 14.8 mmol) and di-tert-butyldicarbonate (3.10 ml, 13.5 mmol) were added to the solution of 3-(4-chlorophenyl)piperazin-2-one (2.60 g, 12.3 mmol) in dichloromethane (100 ml) and stirred. The reaction mixture was washed with 1N aqueous hydrogen chloride, water, brine and then dried. After removal of the solvent under reduced pressure, residue was purified by silica gel column chromatography to give 4-(tert-butoxycarbonyl)-3-(4-chlorophenyl)-piperazin-2-one.

^{1}H-NMR ($CDCl_3$) δ : 1.44 (9H, s), 3.21-3.32 (2H, m), 3.48 (1H, m), 4.04 (1H, brs), 5.66 (1H, brs), 7.10 (1H, brs), 7.30-7.38 (4H, m).

Solution of 4-(tert-butoxycarbonyl)-3-(4-chlorophenyl)-piperazin-2-one (500 mg, 1.6 mmol) and acetic acid (929 μl, 16 mmol) were added to a refluxed solution of sodium borohydride (608 mg, 16 mmol) in 1,4-dioxane (5 ml) and reflux was continued. The reaction was quenched by water and extracted with dichloromethane and washed with brine and dried. After removal of the solvent, residue was purified by silica gel column chromatography to give 4-(tert-butoxycarbonyl)-3-(4-chlorophenyl)piperazine (330 mg, 69%).

^{1}H-NMR ($CDCl_3$) δ : 1.46(9H, s), 2.76-2.99(3H, m), 3.13(1H, dd, J=13.0 Hz, 4.3 Hz), 3.45-3.49(2H, m), 3.92(1H, m), 5.15(1H, s), 7.27-7.33(4H, m).

A solution of 4-(tert-butoxycarbonyl)-3-(4-chlorophenyl)piperazine (330 mg, 1.1 mmol), 2-chloro-3-methyl-6-(4-pyridyl)pyrimidin-4-one (246 mg, 1.1 mmol) and triethylamine (170 μl, 1.22 mmol) in tetrahydrofuran were refluxed. Usual workup and purification by silica gel column chromatography gave 2-(1-(tert-butoxy-carbonyl)-2-(4-chlorophenyl)-piperazine-4-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one (500 mg, 93%).

^{1}H-NMR ($CDCl_3$) δ : 1.45(9H, s), 3.09(1H, m), 3,35(3H, s), 3.40-3.63(4H, m), 3.96-4.19(2H, m), 5.43(1H, s), 6.68(1H, s), 7.23(2H, d, J=8.3 Hz), 7.32(2H, d, J=8.3 Hz), 7.78(2H, d, J=5.9 Hz), 8.72(2H, d, J=5.9 Hz).

4N Hydrogen chloride in ethyl acetate was added to the solution of

2-(1-(tert-butoxycarbonyl)-2-(4-chlorophenyl)-piperazine-4-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one (500 mg, 1.0 mmol) in ethyl acetate and stirred. Filtration and successive dryness gave the title compound (373mg, 79%).

Example 4: Synthesis of 3-methyl-2-(3-(4-((1-pyrrolidinyl)methyl)phenyl)piperidine -1-yl)-6-(4-pyridyl)pyrimidin-4-one fumarate (No. XB43)

Tetrakis(triphenylphosphine)palladium (0.65 g, 0.56 mmol), 4-formylphenylboric acid (2.81 g, 18.7 mmol), 2M aqueous sodium carbonate (18.7 ml, 37.4 mmol) and ethanol were added to the nitrogen-saturated solution of 3-bromopyridine (2.66 g, 16.8 mmol) in toluene and refluxed under nitrogen for 8 hrs. Water was added to the solution and extracted with ethyl acetate, washed with water and brine and dried. Solvents were removed under reduced pressure and the residue was purified by silica gel column chromatography (eluent; hexane/ethyl acetate = 1/1.5) to give 4-(3-pyridyl)benzaldehyde (0.78 g, 25%).

Methyl iodide (0.8 ml, 12.9 mmol) was added to a solution of 4-(3-pyridyl)benzaldehyde (0.78 g, 4.3 mmol) in dichloromethane and stirred 2 days. Additional methyl iodide (0.8 ml, 12.9 mmol) was added and stirred for 3 hr. After removal of the solvent, methanol was added to the residue and ice-cooled. Sodium tetrahydroborate (6.4 g, 17.0 mmol) was added to the solution and stirred for 1.5 hr with warming to room temperature. Organic solvents were removed under reduced pressure after addition of water and extracted with ethyl acetate, washed with water and brine and dried over sodium sulfate. After removal of the solvent under reduced pressure, residue was purified by silica gel chromatography (eluent ethyl acetate to methanol) to give 3-(4-hydroxymethylphenyl)-1-methyl-1,2,5,6-tetrahydropyridine (0.63 g, 72%).

Triethylamine (1.29 ml, 9.2 mmol), acetic anhydride (0.35 ml, 3.7 mmol) were added to a solution of 4-(hydroxymethyl)phenyl-1-methyl-1,2,5,6-tetrahydropyridine (0.63 g, 3.1 mmol) in dichloromethane and stirred overnight.

Organic solvents were removed under reduced pressure after addition of water and extracted with ethyl acetate, washed with water and brine and dried over sodium sulfate. Removal of the solvent under reduced pressure gave 3-(4-acetozymethyl-phenyl)-1-methyl-1,2,5,6-tetrahydropyridine (0.67 g, 89%).

A solution of 3-(4-acetoxymethylphenyl)-1-methyl-1,2,5,6-tetrahydropyridine (0.67 g, 2.7 mmol) and 1-chloroethyl chloroformate (0.36 ml, 3.3 mmol) in dichloroethane was refluxed for 2 hr. Organic solvents were removed under reduced pressure after addition of water and extracted with ethyl acetate, washed with water and brine and dried over sodium sulfate. After removal of the solvent, methanol was added and refluxed for 1.5 hr. Tetrahydrofuran and water were added to the residue after removal of the solvent under reduced pressure and triethylamine (1.9 ml, 13.6 mmol) and di-tert-butyl dicarbonate (0.66 g, 3.0 mmol) were added and stirred. Organic solvents were removed under reduced pressure after addition of water and extracted with ethyl acetate, washed with water and brine and dried over sodium sulfate. Removal of the solvent under reduced pressure and the residue was purified by silica gel chromatography to give 3-(4-acetoxymethylphenyl)-1-(tert-butoxycarbonyl)-1,2,5,6-tetrahydropyridine (0.71 g, 78%).

Palladium on charcoal was added to the solution of 3-(4-acetoxy-methylphenyl)-1-(tert-butoxycarbonyl)-1,2,5,6-tetrahydropyridine (0.71 g, 2.1 mmol) in ethyl acetate and stirred under hydrogen atmosphere. After filtration with celite and removal of the solvent under reduced pressure, methanol and 1N aqueous sodium hydroxide were added and stirred. Organic solvents were removed under reduced pressure after addition of water and extracted with ethyl acetate, washed with water and brine and dried over sodium sulfate. Removal of the solvent under reduced pressure and the residue was purified by silica gel chromatography (eluent; hexane/ethyl acetate = 3/1) to give 3-(4-hydroxymethylphenyl)-1-(tert-butoxycarbonyl)piperidine (0.39 g, 62%).

Triethylamine (0.47 g, 3.4 mmol) and methanesulfonyl chloride (0.12 ml, 1.6 mmol) were added to an ice-cooled solution of 3-(4-hydroxymethylphenyl)-1-(tert-butoxycarbonyl)piperidine (0.39 g, 1.34 mmol) in dichloromethane and stirred for 7.5 hr. Pyrrolidine (1.0 ml, 12 mmol) was added to the solution and stirred overnight. Organic solvents were removed under reduced pressure after addition of water and extracted with ethyl acetate, washed with water and brine and dried over sodium sulfate. Removal of the solvent under reduced pressure and the residue was purified by silica gel chromatography (eluent; ethyl acetate to ethyl acetate/methanol = 1/1, then methanol only) to give 3-(4-(1-pyrrolidinyl)methyl-phenyl)-1-(tert-butoxycarbonyl)piperidine (0.26 g, 56%).

4N Hydrogen chloride in ethyl acetate was added to 3-(4-(1-pyrrolidinyl)-methylphenyl)-1-(tert-butoxycarbonyl)piperidine (0.26 g, 0.75 mmol) and stirred overnight. After filtration and dryness, triethylamine (0.5 ml, 3.6 mmol), 2-chloro-3-methyl-6-(4-pyridyl)-pyrimidin-4-one (0.14 g, 0.63 mmol) and tetrahydrofuran were added and stirred at 70℃. Organic solvents were removed under reduced pressure after addition of water and extracted with ethyl acetate, washed with water and brine and dried over sodium sulfate. Removal of the solvent under reduced pressure and the residue was dissolved into ethyl acetate. A solution of fumaric acid (0.095 g, 0.82 mmol) in acetone was added and the resulting precipitate was filtered and dried to give the title compound (0.29 g, 76%).

Example 5: Synthesis of (R)-2-(2-(4-chlorophenyl)piperazin-4-yl)-3-methyl-6-(4-pyridyl)-pyrimidin-4- one (No. XA372)

To a solution of (S)-2-methyl-CBS-oxazaborolidine (27.6 mL, 1.0 M solution in toluene, 27.6 mmol) was added borane-tetrahydrofuran complex (166 ml, 1.0 M solution in tetrahydrofuran, 166 mmol) at –40 °C. To the resulting solution was added a solution of 4'-chlorophenacyl bromide (32.25 g, 138.1 mmol) in tetrahydrofuran (200 ml) through dropping funnel over 1 h at –40 °C. After stirring

for 3 hours below 0 °C, methanol (ca. 50 ml) was added dropwise. After stirring the resulting solution for additional 30 min at room temperature, solvent was removed under reduced pressure. The residue, dissolved in ethyl acetate, was treated with 1 N hydrochloric acid to form white precipitate, which was filtered off. The layers of the filtrate was separated, and the organic layer was washed with hydrochloric acid and brine successively, dried over anhydrous sodium sulfate, filtered, and concentrated under reduced pressure. The residue was used for the next reaction without further purification.

The residue was dissolved in ether (250 ml), and stirred with potassium hydroxide (15.5 g, 276 mmol) in water (250 ml) vigorously. After consumption of the starting material, the layers were separated. The organic layer was washed with brine, dried over anhydrous sodium sulfate, filtered, and concentrated under reduced pressure. The residue was used for the next reaction without further purification.

The residue was heated with benzylamine (37.7 ml, 345 mmol) at 80 °C for 4.5 h. After cooling at room temperature, the resulting white crystals was washed with ether/hexane and collected to afford (S)-2-benzylamino-1-(4-chlorophenyl)-ethanol (23.8 g, 65.8%). The excess benzylamine in the filtrate was distilled off at 120 °C under reduced pressure. From the residue, another (S)-2-benzylamino-1-(4-chlorophenyl)ethanol (2.41 g, 6.7%) was obtained.

^{1}H NMR ($CDCl_3$) ™: 2.68(1H, dd, J=12.3, 8.9Hz), 2.92(1H, dd, J=12.3, 3.7Hz), 3.80(1H, d, J=11.9Hz), 3.86(1H, d, J=11.9Hz), 4.68(1H, dd, J=8.9, 3.7Hz), 7.30(9H, m).

To a suspension of (S)-2-benzylamino-1-(4-chlorophenyl)ethanol (15.76 g, 60.21 mmol) and triethylamine (33.6 ml, 241 mmol) in dichloromethane (300 ml) was added a solution of thionyl chloride (4.83 ml, 66.2 mmol) in dichloromethane (20 ml) at –78 °C over 20 min. The resulting suspension was stirred at –78 °C for 20 min and at 0 °C for additional 20 min. The reaction mixture was partitioned

between ether and water, and the organic layer was washed with brine, dried over anhydrous sodium sulfate, filtered, and concentrated under reduced pressure. The residue was purified by silica gel column chromatography (eluent: 10-20% ethyl acetate-hexane) to afford (2RS,5S)-3-benzyl-5-(4-chlorophenyl)-1,2,3-oxathiazolidine 2-oxide (16.2 g 87.4%) as a pale yellow solid.

The resulting product was obtained as a mixture of two diastereomers due to the S-oxide.

major isomer: ^{1}H NMR ($CDCl_3$) δ : 3.31(1H, dd, J=10.5, 9.9Hz), 3.55(1H, dd, J=9.0, 6.3Hz), 3.88(1H, d, J=13.2Hz), 4.37(1H, d, J=13.2Hz), 5.49(1H, dd, J=10.5, 6.3Hz), 7.22-7.43(9H, m).

minor isomer: ^{1}H NMR ($CDCl_3$) δ : 3.21(1H, dd, J=13.5, 4.5Hz), 3.77(1H, dd, J=13.5, 11.4Hz), 4.05(1H, d, J=13.5Hz), 4.38(1H, d, J=13.5Hz), 5.99(1H, dd, J=11.4, 4.5Hz), 7.22-7.43(9H, m).

A solution of (2RS,5S)-3-benzyl-5-(4-chlorophenyl)-1,2,3-oxathiazolidine 2-oxide (16.2 g, 52.6 mmol) and sodium azide (17.11 g, 263.2 mmol) in N,N-dimethylformamide (100 ml) was heated at 70 °C for 24 hours. The reaction mixture was partitioned between ether and water, and the organic layer was washed with water and brine successively, dried over anhydrous sodium sulfate, and concentrated under reduced pressure. The residue was purified by silica gel column chromatography (eluent: 10-20% ethyl acetate-hexane) to afford (R)-N-benzyl-2-azido-2-(4-chlorophenyl)ethylamine (12.7 g, 83.8%) as a yellow oil.
^{1}H NMR ($CDCl_3$) δ : 2.81(1H, dd, J=12.5, 5.1Hz), 2.89(1H, dd, J=12.5, 8.5Hz), 3.82(2H, s),4.64(1H, dd, J=8.5, 5.1Hz),7.23-7.36(9H, m).

A solution of (R)-N-benzyl-2-azido-2-(4-chlorophenyl)ethylamine (12.7 g, 44.1 mmol) in tetrahydrofuran (176 mL) was treated with triphenylphosphine (13.9 g, 52.9 mmol) at room temperature. After addition of water (20 ml), the reaction mixture was heated at 60 °C for 1 h. The reaction mixture was condensed, and partitioned between ether and 1 N hydrochloric acid. The aqueous layer was

treated with 1 N aqueous sodium hydroxide solution until the solution became basic. The resulting solution was extracted with dichlromethane thoroughly. The combined organic layer was washed with water, dried over anhydrous sodium sulfate, filtered, and concentrated under reduced pressure. The residue was used for the next reaction without further purification.

The residue was heated with diethyl oxalate (18 ml, 132 mmol) at 120 °C for 1.5 h. The resulting white precipitate was washed with ether and collected to afford (R)-1-benzyl-5-(4-chlorophenyl)-2,3-dioxopiperazine (11.4 g, 82.2%).

^{1}H NMR ($CDCl_3$) δ : 3.46(1H, dd, J=12.9, 8.1Hz), 3.60(1H, dd, J=12.9, 3.8Hz), 4.48(1H, d, J=14.7Hz), 4.79(1H, d, J=14.7Hz), 4.80(1H, dd, J=8.9, 3.8Hz), 6.83(1H, s), 7.13(4H, m), 7.27(5H, m).

To a suspension of (R)-1-benzyl-5-(4-chlorophenyl)-2,3-dioxopiperazine (11.4 g, 36.3 mmol) in tetrahydrofuran (300 ml) was added borane-tetrahydrofuran complex (181 mL, 1.0 M solution in tetrahydrofuran, 181 mmol) at room temperature. After stirring for 24 hours, the reaction mixture was quenched with methanol (50 ml) at 0 °C, and concentrated under reduced pressure. The residue was treated with 10% aqueous sodium hydroxide solution (300 ml) and heated at 100 °C for 2 hours. After cooling at room temperature, the mixture was extracted with dichloromethane thoroughly. The combined organic layer was dried over anhydrous sodium sulfated, filtered, and concentrated under reduced pressure. The residue was used for the next reaction without further purification.

To a solution of the residue and triethylamine (7.58 ml, 54.4 mmol) in dichloromethane (150 ml) was added di-tert-butyl dicarbonate (9.49 g, 43.5 mmol) at room temperature. After stirring for 45 min, the resulting mixture was partitioned between dichloromethane and water, dried over anhydrous sodium sulfate, filtered, and concentrated under reduced pressure. The residue was purified by silica gel column chromatography (eluent: 10-20% ethyl acetate-hexane) to afford (R)-1-benzyl-4-(tert-butoxycarbonyl)-3-(4-chlorophenyl)piperazine (11.6 g,

82.8%) as an oil.

^{1}H NMR ($CDCl_3$) δ : 1.43(9H, s), 2.16(1H, dt, J=4.4, 11.7Hz), 2.40(1H, dd, J=4.4, 11.7Hz), 2.78(1H, dd, J=4.4, 11.7Hz), 2.98(1H, dt, J=4.4, 11.7Hz), 3.20(1H, d, J=12.8Hz), 3.42(1H, d, J=12.9Hz), 3.57(1H, d, J=12.9Hz), 3.89(1H, d, J=12.8Hz), 5.17(1H, s), 7.24-7.36(9H, m).

To a solution of (R)-1-benzyl-4-(tert-butoxycarbonyl)-3-(4-chlorophenyl)piperazine (11.6 g, 30.1 mmol) in 1,2-dichloroethane (80 ml) was added 1-chloroethyl chloroformate (4.91 ml, 45.1 mmol) at room temperature. Upon disappearance of the starting material, the reaction mixture was concentrated under reduced pressure. The residue was then dissolved in methanol (100 ml) and refluxed for 30 min. The resulting white precipitate was filtered and washed with methanol to afford (R)-2-(4-chlorophenyl)piperazine dihydrochloride, which was liberated with aqueous sodium hydroxide solution, and extracted with dichloromethane to afford (R)-2-(4-chlorophenyl)piperazine (3.04 g, 51.4%) as white solid.

^{1}H NMR ($CDCl_3$) δ :2.65(1H, dd, J=12.0, 10.5Hz), 2.82-3.04(4H, m), 3.09(1H, d, J=12.6Hz), 3.73(1H, dd, J=10.1, 2.7Hz), 7.29(4H, m)

The filtrate was concentrated under reduced pressure and partitioned between ether and 1 N hydrochloric acid. The aqueous layer was neutralized with 1 N aqueous sodium hydroxide solution, and extracted with dichloromethane thoroughly. The combined organic extracts were dried over anhydrous sodium sulfate, filtered, and concentrated under reduced pressure. The residue was purified after Boc-protection (Boc_2O, Et_3N, CH_2Cl_2) to furnish (R)-1,4-di(tert-butoxycarbonyl)-2-(4-chlorophenyl)piperazine (2.70 g, 22.6%) as pale yellow solid.

^{1}H NMR ($CDCl_3$) δ : 1.43(9H, s), 1.46(9H, s), 2.96(2H, m), 3.32(1H, dd, J=13.8, 4.2Hz), 3.74(1H, m), 3.94(1H, d, J=11.4Hz), 4.40(1H, d, J=13.2Hz),5.23(1H, s),7.25(2H, m)

To a suspension of (R)-2-(4-chlorophenyl)piperazine dihydrochloride (1.09 g, 4.05 mmol) in tetrahydrofuran (24 ml) was added triethylamine (2.82 ml, 20.3 mmol). After stirring for 15 min at room temperature, 2-chloro-3-methyl-6-(4-pyridyl)-3H-pyrimidin-4-one (748 mg, 3.38 mmol) was added portionwise. Upon disappearance of the chloropyrimidone, the reaction mixture was condensed under reduced pressure. The residue was partitioned between saturated aqueous sodium bicarbonate solution and dichloromethane. The organic layer was dried over anhydrous sodium sulfate, filtered, and concentrated under reduced pressure to give pale yellow solid, which was recrystallized from ethanol to afford (R)-2-(2-(4-chlorophenyl)piperazin-4-yl)-3-methyl-6-(4-pyridyl)-pyrimidin-4-one (998 mg, 77.4%) as white crystals. The enantiomer excess was determined by HPLC (>99% ee). The crystals were converted into its dihydrochloride salt.

^{1}H NMR (DMSO-d_6) δ : 3.40(3H, m), 3.46(3H, s), 3.62(1H, dd, J=12.0, 13.2Hz), 3.72(1H, m), 3.92(1H, t, J=15.5Hz), 4.68(1H, t, J=10.1Hz), 7.18(1H, s), 7.58(2H, d, J=8.6Hz), 7.83(2H, d, J=8.6Hz), 8.57(2H, d, J=6.6Hz), 9.01(2H, d, J=6.6Hz), 10.20(1H, d, J=7.8Hz), 10.76(1H, br s)

MS: 382(M+H)

$[\alpha]_D^{24}$ = +62.2 ° (*c* 1.00, H_2O)

Example 6: Synthesis of (S)-2-(2-(4-chlorophenyl)piperazin-4-yl)-3-methyl-6-(4-pyridyl)-pyrimidin-4-one (No. XA373)

(S)-isomer was prepared same as above by using (R)-2-methyl-CBS-oxazaborolidine instead of (S)-2-methyl-CBS-oxazaborolidine.

^{1}H NMR (DMSO-d_6) δ : 3.40 (3H, m), 3.45 (3H, s), 3.53-3.96 (3H, m), 4.68 (1H, t, J = 13.5Hz), 7.10 (1H, s), 7.60 (2H, d, J=8.3Hz), 7.76 (2H, d, J=8.3Hz), 8.38 (1H, br s), 8.91 (1H, d, J=4.8Hz), 9.88 (1H, br s), 10.31 (1H, br s)

MS: 382(M+H)

$[\alpha]_D^{24}$ = –63.3 ° (*c* 1.00, H_2O)

Example 7: Synthesis of 2-(2-(4-fluoro-2-methoxyphenyl)piperazin-4-yl)-3-methyl-6-(4-pyrimidyl)-pyrimidin-4-one (No. YA0366)

A solution of 2-bromo-5-fluoroanisole (11.8 g, 57.6 mmol) in tetrahydrofuran (60 ml) was dropped into the magnesium (1.40 g, 57.6 mmol) in refluxed tetrahydrofuran (32 ml) containing small amount of 1,2-dibromoethane and refluxed for 15 min. After addition of tetrahydrofuran (50 ml), the solution was cooled to –78 ℃ and diethyl oxalate (7.41 g, 50.7 mmol) in diethyl ether (50 ml) was dropped into the solution. After stirring at the same temperature for 30 min, the solution was warmed to -10℃ and 1N aqueous hydrogen chloride (50 ml) and water were added. Organic layer was extracted with diethyl ether, washed with brine and dried over magnesium sulfate. After removal of the solvent under reduced pressure, purification of the residue by silica gel column chromatography (eluent: hexane/ethyl acetate = 5/2) gave ethyl 2-(4-fluoro-2-methoxyphenyl)-2-oxoacetate (6.80g, 59%)

^{1}H-NMR ($CDCl_3$) δ : 1.40(3H, t, J=7.1 Hz),3.87(3H, s), 4.89(2H, q, J=7.1Hz), 6.68(1H, d, J=10.5 Hz), 6.77-6.81(1H, m), 7.91-7.95(1H, m).

Ethylenediamine (0.60 g, 10.0 mmol) was added to a solution of ethyl 2-(4-fluoro-2-methoxyphenyl)-2-oxoacetate (2.26 g, 10.0 mmol) in ethanol(30 ml) and refluxed 4 hr. After removal of the solvent under reduced pressure, residue was washed with ethanol-diethyl ether to give 5,6-dihydro-3-(4-fluoro-2-methoxyphenyl)pyrazinone (1.76 g, 79%).

^{1}H-NMR ($CDCl_3$) δ : 3.50-3.56 (2H, m), 3.81 (3H, s), 3.88-3.92 (2H, m), 6.65(1H, d, J=11.0 Hz), 6.70-6.76 (1H, m), 6.89(1H, bs), 7.36-7.40(1H, m).

5,6-Dihydro-3-(4-fluoro-2-methoxyphenyl)pyrazinone was added to the solution of lithium aluminium hydride (0.46 g, 12 mmol) in diethyl ether (25 ml) and refluxed for 6 hr. Water (0.48 ml), 15% sodium hydroxide solution (0.48 ml) and again water (1.21 ml) were added to the ice-cooled solution and the precipitate was

filtered and washed with dichloromethane. Combined organic layer was evaporated to give 2-(4-fluoro-2-methoxyphenyl)piperazine (0.83 g, 99%).

^{1}H-NMR ($CDCl_3$) δ : 2.02(2H, s), 2.57-2.63 (1H, m), 2.80-2.89 (1H, m), 2.92-2.99 (2H, m), 3.06-3.12 (2H, m), 3.80(3H, s), 4.06 (1H, d, J=10.0 Hz), 6.56-6.65 (2H, m), 7.40 (1H, t, J=7.8 Hz).

2-Chloro-3-methyl-6-(4-pyrimidyl)-pyrimidin-4-one (223 mg, 1.0 mmol) was added to an ice-cooled solution of 2-(4-fluoro-2-methoxyphenyl)piperazine (210 mg, 1.0 mmol), triethylamine (0.15 ml, 1.1 mmol) in N,N-dimethylformamide (10 ml) and stirred at that temperature for 0.5 hr and then at room temperature for 3 hours. Reaction was quenched by ice-water and the filtrate was washed with water and dried to give 2-(2-(4-fluoro-2-methoxyphenyl)piperazin-4-yl)-3-methyl-6-(4-pyrimidyl)-pyrimidin-4-one (262 mg, 66%).

^{1}H-NMR ($CDCl_3$) δ : 2.89-2.98 (1H, m), 3.22-3.31 (3H, m), 3.60 (3H, s), 3.62-3.71 (2H, m), 3.86 (3H, s), 4.39-4.44 (1H, m), 6.43-6.73 (2H, m), 7.33 (1H, s), 7.52-7.56 (1H, m), 8.19 (1H, d, J=5.1 Hz), 8.87 (1H, d, J=5.2 Hz), 9.28 (1H, d, J=1.2 Hz).

4N Hydrogen chloride in 1,4-dioxane (0.2 ml) was added to the solution of 2-(2-(4-fluoro-2-methoxyphenyl)piperazin-4-yl)-3-methyl-6-(4-pyrimidyl)-pyrimidin-4-one (238 mg, 0.6 mmol) in dichloromethane (5 ml) and stirred for 15 min. Wash with methanol and ethyl acetate after removal of the solvent and dryness gave the title compound (223 mg, 86%).

Example 8: Synthesis of 2-(2-(4-chlorophenyl)-piperazine-4-yl)-3-methyl-6-(4-pyrimidyl)pyrimidin-4-one (No. YA0269)

Dimethyl sulfoxide (60 ml) solution of 4-chlorophenacylbromide (11.11 g, 65.9 mmol) and water (1.7 ml) were stirred. The solution was extracted with ethyl acetate 3 times and washed with water twice and brine and then dried over sodium sulfate. After removal of the solvent, the residue was washed with hexane-ethyl acetate and dried to give 4-chlorophenylglyoxal (4.43 g, 50%).

^{1}H-NMR ($CDCl_3$) δ : 4.02-4.16(2H, m), 5.90-5.95(1H, m), 7.45-7.53(2H, m), 8.05-8.11(2H, m).

A methanol (10 ml) solution of ethylenediamine (1.90 g, 31.6 mmol) was added to the ice-cooled solution of 4-chlorophenylglyoxal (4.43 g, 26.3 mmol) in methanol (100 ml) and tetrahydrofuran (30 ml) and stirred for 10 min. After addition of sodium tetrahydroborate (3.26 g, 86.3 mmol), additional methanol (50 ml) was added and stirred overnight. After removal of the solvent, diluted hydrochloric acid was added and extracted with ether twice. After addition of sodium hydroxide, basic aqueous layer was extracted with dichloromethane three times and washed with brine and dried over sodium sulfate. After removal of the solvent by filtration, purification of the residue by silica gel column chromatography (eluent; dichloromethane/ethanol = 10/1 to dichloromethane/ethanol/diethylamine = 20/2/1) to give 2-(4-chlorophenyl)-piperazine (0.43 g, 9%)

^{1}H-NMR ($CDCl_3$) δ : 2.67(1H, dd, J=10.5, 12.0 Hz), 2.87-3.03(4H, m), 3.07-3.13(1H, m), 3.77(1H, dd, J=2.7, 10.2 Hz), 7.27-7.36(4H, m).

Triethylamine (528 mg, 5.2 mmol) was added to a solution of 4-(chlorophenyl)piperazine (216 mg, 1.1 mmol) and 2-chloro-3-methyl-6-(4-pyrimidyl)pyrimidin-4-one and stirred at 50℃ for 2 hr. Solvent was removed under reduced pressure, and 1N aqueous sodium hydroxide solution was added to the residue and extracted by dichloromethane. After washing with brine and dryness by sodium sulfate, solvent was removed under reduced pressure, and the residue was purified using ISOLUTE(registered trade mark) SI (International Sorvent Technology, UK)(eluent; dichloromethane/ethanol = 10/1) to give the title compound (396 mg, 95 %).

Example 9 : Synthesis of 2-(2-(4-chlorophenyl)-6,6-dimethyl-piperazin-4-yl)-3-methyl-6-pyridin-4-yl-3*H*-pyrimidin-4-one dihydrochloride (No. XA1986)

A solution of 4'-chloro-2-bromoacetophenone (25.0 g, 107 mmol), water (1.92 mL, 107 mmol) and 47% hydrobromic acid (0.20 mL) in dimethylsulfoxide (160 mL) was stirred at 80℃ for 5 h. After the reaction mixture was poured into water, the precipitate was filtered, washed with diethylether and dried, affording 4'-chloro-2,2-dihydroxyacetophenone (14.0 g, 70%). ^{1}H NMR (300MHz, $CDCl_3$), δ 5.92(1H, s), 7.45-7.52(2H, m), 8.05 –8.20(2H, m).

2,2-dimethly-ethylenediamine (2.10 mL, 20.0 mmol) was added to a solution of 4'-chloro-2,2-dihydroxyacetophenone (3.70 g, 20.0 mmol) in methanol (120 mL) and tetrahydrofuran (30 mL) at room temperature. After 2 h, sodium borohydride (1.50 g, 40.0 mmol) was added to the reaction mixture at 0 ℃. The reaction mixture was stirred overnight, then quenched with 1N hydrochloric acid and evaporated *in vacuo*. The acidic solution was extracted with ethyl acetate, then basified to pH 11 using 15% aqueous sodium hydroxide, and extracted with dichloromethane. The extract was dried over sodium sulfate and concentrated *in vacuo*. Di-t-butyldicarbonate (6.40 mL, 27.9 mmol) was added to the solution of the residue in 1N aqueous sodium hydroxide (40 mL) and tetrahydrofuran (60 mL). The resulting suspension was heated at 40 ℃ for 8 h, then diluted with ethyl acetate and water. The organic layer was extracted with additional ethyl acetate, dried and concentrated *in vacuo*. The crude product was purified by flash column chromatography, affording 2-(4-chlorophenyl)-4-*t*-butoxycarbonyl-6,6-dimethyl-piperazine (1.69 g, 28%, 2 steps). ^{1}H NMR (300MHz, $CDCl_3$), δ 1.15(3H, s), 1.21(3H, s), 2.47-2.70(2H, m), 3.72-4.16(3H, m), 7.26-7.37(4H, m).

4 M Hydrogen chloride in ethyl acetate (5.0 mL, 20.0 mmol) was added to a solution of 2-(4-chlorophenyl)-4-*t*-butoxycarbonyl-6,6-dimethyl-piperazine (1.69 g, 5.2 mmol). After 12 h, removing the solvent, filtrating and washing the precipitate with ethyl acetate gave 2-(4-chlorophenyl)-6,6-dimethyl-piperazine dihydrochloride

(1.43 g, 95%). ^{1}H NMR (300MHz, DMSO-d_6), δ 1.40 (3H, s), 1.58(3H, s), 3.24-3.99(4H, m), 4.73(1H, m), 7.69(2H, d, J = 8.4 Hz), 7.79(2H, m), 9.99-10.12(2H, m).

A solution of 2-(4-chlorophenyl)-6,6-dimethyl-piperazine hydrochloride (155 mg, 0.52 mmol), 2-chloro-3-methyl-6-(4-pyridyl)-pyrimidine-4-one (111 mg, 0.50 mmol) and triethylamine (0.42 mL, 2.50 mmol) in tetrahydrofuran (5 mL) was stirred at room temperature for 6 h. The whole was evaporated *in vacuo* and the residue was extracted with dichloromethane. The organic layer was washed with water, dried and concentrated in vacuo. The residue was dissolved in methanol (5mL) and treated with 4M hydrogen chloride in ethyl acetate (0.50 mL, 2.0 mmol) for 20 min. After removing the solvent, filtrating and washing the precipitate with ethanol gave 2-(2-(4-chlorophenyl)-6,6-dimethyl-piperazin-4-yl)-3-methyl-6-pyridin-4-yl-3*H*-pyrimidin-4-one dihydrochloride (235 mg, 97%).

Example 10 : Synthesis of 2-(2*S*-(4-bromophenyl)-piperazin-1-yl)-3-methyl-6-pyridin-4-yl-3*H*-pyrimidin-4-one (No. XA2051)

Benzyl chloroformate (2.40 mL, 15.0 mmol) was added to a solution of 2*S*-(4-bromophenyl)-piperazine dihydrochloride in 1N aqueous sodium hydroxide (30 mL) and dichloromethane (60 mL). The resulting suspension was stirred at room temperature for 1.5 h. After partitioned between ethyl acetate, the organic layer was extracted with additional ethyl acetate, dried and concentrated in vacuo. The precipitate was washed with ether, affording 2*S*-(4-bromophenyl)-4-benzyloxycarbonyl-piperazine (2.92 g, 57%). ^{1}H NMR (300MHz, $CDCl_3$), δ 2.87-3.01(2H, m), 3.47(2H, m), 3.93-3.97(1H, m), 4.20(2H, m), 5.16(2H, s), 7.36(5H, m), 7.42-7.61(4H, m).

A solution of 2*S*-(4-bromophenyl)-4-benzyloxycarbonyl-piperazine (788 mg, 2.10 mmol), 2-chloro-3-methyl-6-(4-pyridyl)-pyrimidine-4-one (444 mg, 2.00 mmol) and diisopropylethylamine (0.70 mL, 4.00 mmol) in dimethylformamide (20 mL) was stirred at 80℃ for 3 h. The reaction mixture was poured into water and the

whole was extracted with ethyl acetate. The organic layer was washed with brine, dried and concentrated *in vacuo*. Chromatographic purification of the residue provided 2-(2*S*-(4-bromophenyl)-4-benzyloxycarbonyl-piperazin-1-yl)}-3-methyl-6-pyridin-4-yl-3*H*-pyrimidin-4-one (601 mg, 54%). ^{1}H NMR (300MHz, $CDCl_3$), δ 3.05(1H, m), 3.30-3.48(3H, m), 3.64(3H, s), 4.08-4.22(2H, m), 4.68(1H, m), 5.15(1H, d, J= 12.3 Hz), 5.21(1H, d, J= 12.6 Hz), 6.63(1H, s), 7.21(2H, d, J= 8.4 Hz), 7.28-7.39(7H, m), 7.59(2H, d, J=6.3 Hz), 8.68(2H, d, J=6.3 Hz).

Potassium hydroxide (168 mg, 3.0 mmol) was added to a solution of 2-{2*S*-(4-bromophenyl)-4-benzyloxycarbonyl-piperazin-1-yl}-3-methyl-6-pyridin-4-yl-3*H*-pyrimidin-4-one in ethanol (2.0 mL). After stirring for 8 h at room temperature, purifying by preparative HPLC gave 2-(2*S*-(4-bromophenyl)-piperazin-1-yl)-3-methyl-6-pyridin-4-yl-3*H*-pyrimidin-4-one (40 mg, 26%).

Example 11 : Synthesis of (S)-3-methyl-6-(4-pyridyl)-2-(3-(4-(3-(pyrrolidin-1-yl) pyrrolidin-1-yl)phenyl)piperazin-1-yl)pyrimidin-4-one (No. XA2032)

A suspension of (S)-2-(4-bromophenyl)-1,4-di(t-butoxycarbonyl) piperazine (1.33 g, 3.00 mmol), (R)-3-pyrrolidinol (520 mg, 4.20 mmol), palladium acetate (27 mg, 0.12 mmol), 2-(di-t-butylphosphino)biphenyl (72 mg, 0.24 mmol), and sodium t-butoxide (808 mg, 8.41 mmol) in tert-butanol (20 mL) was heated at 90 °C for 3.5 h. After dilution with ethyl acetate, the resulting mixture was passed through a Celite column. The filtrate was concentrated in vacuo, and the residue was purified by silica gel column chromatography eluting 10-50% ethyl acetate - hexane to afford (S)-1,4-di-(t-butoxycarbonyl)-2-(4-((R)-3-hydroxypyrrolidino) phenyl)piperazine (733 mg, 54.5%) as a yellow foam.

To a solution of (S)-1,4-di(t-butoxycarbonyl)-2-(4-((R)-3-hydroxy pyrrolidino) phenyl)piperazine (733 mg, 1.64 mmol) and triethylamine (0.34 mL, 2.46 mmol) in dichloromethane (20 mL) was added methanesulfonyl chloride (0.152 mL, 1.97 mmol) at 0 °C. After stirring for 20 min, the reaction mixture was

partitioned between ethyl acetate and water. The organic layer was washed with brine, dried over anhydrous sodium sulfate, and concentrated in vacuo to afford (S)-1,4-di(t-butoxycarbonyl)-2-(4-((R)-3-(methansulfonyloxy)pyrrolidin-1-yl) phenyl)piperazine (877 mg, quant.) as a brown solid.

To a solution of (S)-1,4-di(t-butoxycarbonyl)-2-(4-((R)-3-methansulfonyloxy-pyrrolidino)phenyl)piperazine (877 mg, 1.64 mmol) in toluene (10 mL) was added pyrrolidine (0.64 mL, 8.19 mmol), and the resulting solution was heated at 90 °C for 8 h. After checking consumption of the starting material with TLC, the reaction mixture was partitioned between ethyl acetate and saturated sodium bicarbonate aqueous solution. The organic layer was washed with brine, dried over anhydrous sodium sulfate, and concentrated in vacuo. The residue was purified by silica gel column chromatography eluting 30-100% ethyl acetate-hexane and then 3-10% methanol-ethyl acetate to afford (S)-1,4-di(t-butoxycarbonyl)-2-(4-((S)-3-(pyrrolidin-1-yl)pyrrolidin-1-yl) phenyl)piperazine (479 mg, 58%) as a pale yellow powder.

To a solution of (S)-1,4-di(t-butoxycarbonyl)-2-(4-((S)-3-(pyrrolidin-1-yl) pyrrolidin-1-yl)phenyl)piperazine (479 mg, 0.957 mmol) in dichloromethane (4 mL) was added 4 N hydrogen chloride in ethyl acetate (4 mL) at room temperature. After stirring for 3 h, the resulting precipitate was collected and dried in vacuo to afford (S)-2-(4-((S)-3-(pyrrolidin-1-yl)pyrrolidin-1-yl)phenyl)piperazine tetrahydrochloride (370 mg, 87%) as a white solid.

To a suspension of (S)-2-(4-((S)-3-(pyrrolidin-1-yl)pyrrolidin-1-yl)phenyl) piperazine tetrahydrochloride (98 mg, 0.22 mmol) in tetrahydrofuran (5 mL) was added triethylamine (0.20 mL, 1.40 mmol) and 2-chloro-3-methyl-6-(4-pyridyl)-3H-pyrimidin-4-one (44 mg, 0.20 mmol) at room temperature. After stirring for 24 h, the reaction mixture was concentrated in vacuo. The residue was dissolved in dichloromethane and sodium bicarbonate aqueous solution, and the solution was passed through CHEM ELUT CE1010 (manufactured by VARIAN). The filtrate was

concentrated, and the resulting crystals were washed in a mixture of diisopropyl ether and ethanol to afford (S)-2-(3-(4-(3-(pyrrolidin-1-yl)pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3- methyl-6-(4-pyridyl)pyrimidin-4-one (80 mg, 82%) as a pale yellow solid.

Example 12: Synthesis of (S)-3-methyl-6-(4-pyrimidinyl)-2-(3-(4-(3-(pyrrolidin-1-yl) pyrrolidin-1-yl)phenyl)piperazin-1-yl)pyrimidin-4-one (No. YA1577)

To a suspension of (S)-2-(4-((S)-3-(pyrrolidin-1-yl)pyrrolidin-1-yl)phenyl) piperazine tetrahydrochloride (99 mg, 0.22 mmol) in tetrahydrofuran (5 mL) was added triethylamine (0.20 mL, 1.40 mmol) and 2-chloro-3-methyl-6-(4-pyrimidinyl)-3H-pyrimidin-4-one (45 mg, 0.20 mmol) at room temperature. After stirring for 24 h, the reaction mixture was concentrated in vacuo. The residue was dissolved in dichloromethane and sodium bicarbonate aqueous solution, and the solution was passed through CHEM ELUT CE1010 (manufactured by VARIAN). The filtrate was concentrated, and the resulting crystals were washed in a mixture of diisopropyl ether and ethanol to afford (S)-3-methyl-6-(4-pyrimidinyl)-2-(3-(4-(3-(pyrrolidin-1-yl)pyrrolidin-1-yl)phenyl)piperazin-1-yl)-pyrimidin-4-one (65 mg, 66%) as a pale yellow solid.

Example 13 : Synthesis of (S)-2-(3-(4-(N-cyclohexyl-N-methylamino)phenyl) piperazin- 1-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one (No. XA1999)

A suspension of (S)-2-(4-bromophenyl)-1,4-di(t-butoxycarbonyl) piperazine (1.21 g, 2.75 mmol), N-methylcyclohexylamine (0.43 mL, 3.30 mmol), palladium acetate(25 mg, 0.11 mmol), 2-(di-t-butylphosphino)biphenyl (66 mg, 0.22 mmol), and sodium t-butoxide (370 mg, 3.85 mmol) in t-butanol (15 mL) was heated at 80 °C for 8 h. The resulting solution was partitioned between ethyl acetate and water. The organic layer was washed with brine, dried over anhydrous sodium sulfate, and concentrated in vacuo. The residue was purified by silica gel column

chromatography eluting 10-15% ethyl acetate-hexane to afford (S)-1,4-di(t-butoxycarbonyl)-2-(4-(N- cyclohexyl-N-methylamino)phenyl)piperazine (917 mg) as white crystals.

To a solution of (S)-1,4-di(t-butoxycarbonyl)-2-(4-(N-cyclohexyl-N-methylamino)phenyl)piperazine in dichloromethane (4 mL) was added 4 N hydrogen chloride in ethyl acetate(4 mL). After stirring for 40 min, the white precipitate was collected, which included impurities. The mixture was purified by a reverse phase chromatography eluting 0.05% TFA in water-acetonitrile to afford (S)-2-(4-(N- cyclohexyl-N-methylamino)phenyl)piperazine (59 mg 8% in 2 steps) as a clear oil.

To a solution of (S)-2-(4-(N-cyclohexyl-N-methylamino)phenyl) piperazine(50 mg, 0.183 mmol) and triethylamine (0.077 mL, 0.55 mmol) was added 2-chloro-3-methyl-6-(4-pyridyl)-3H-pyrimidin-4-one (37 mg, 0.17 mmol) at room temperature. After stirring for 4.5 h, the reaction mixture was concentrated in vacuo. The residue was partitioned between dichloromethane and saturated sodium bicarbonate aqueous solution. The organic layer was dried over anhydrous sodium sulfate and concentrated. The residue was purified by a reverse phase chromatography eluting 0.05% TFA in water-acetonitrile to afford (S)-2-(3-(4-(N-cyclohexyl-N-methylamino)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one (67 mg, 88%) as a oil, which was dissolved in ethyl acetate and treated with 4 N hydrogen chloride in ethyl acetate to yield its trihydrochloride.

Example 14 : Synthesis of (S)-2-(3-(4-(N,N-dimethylamino)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one trihydrochloride (No. XA2017)

A suspension of (S)-2-(4-bromophenyl)-1,4-di(t-butoxycarbonyl) piperazine (1.14 g, 2.59 mmol), N,N-dimethylamine hydrochloride (422 mg, 5.17 mmol), palladium acetate (23 mg, 0.10 mmol), 2-(di-t-butylphosphino)biphenyl(62 mg, 0.21 mmol), and sodium t-butoxide (845 mg, 8.80 mmol) in t-butanol (15 mL)

was heated at 90 °C for 3 h. After dilution with ethyl acetate, the resulting solution was passed through a Celite column. The filtrate was concentrated, and the residue was purified by silica gel column chromatography eluting 10-20% ethyl acetate-hexane to afford (S)-1,4-di(t-butoxycarbonyl)-2-(4-(N,N-dimethylamino) phenyl)piperazine (556 mg, 53%) as white crystals.

To a solution of (S)-1,4-di(t-butoxycarbonyl)-2-(4-(N,N-dimethylamino) phenyl)piperazine (556 mg, 1.37 mmol) in dichloromethane (4 mL) was added 4 N hydrogen chloride in ethyl acetate (4 mL). After stirring for 8.5 h, the white precipitate was collected and dried in vacuo to afford (S)-2-(4-(N,N-dimethylamino) phenyl)piperazine trihydrochloride (413 mg, 96%) as white crystals.

To a suspension of (S)-2-(4-(N,N-dimethylamino)phenyl)piperazine trihydrochloride(115 mg, 0.365 mmol) in tetrahydrofuran (5 mL) was added triethylamine (0.28 mL, 2.0 mmol) and then 2-chloro-3-methyl-6-(4-pyridyl)-3H-pyrimidin-4-one (74 mg, 0.33 mmol) at room temperature. After stirring for 10 h, the resulting mixture was concentrated in vacuo. The residue was dissolved in dichloromethane and saturated sodium bicarbonate aqueous solution, and the solution was passed through CHEM ELUT CE1010 (manufactured by VARIAN). The filtrate was concentrated in vacuo to yield crystals, which were washed with diisopropyl ether. After the crystals were dissolved in ethyl acetate, the solution was treated with 4 N hydrogen chloride in ethyl acetate. White precipitate was collected and dried in vacuo to afford (S)-2-(3-(4-(N,N-dimethylamino)phenyl) piperazin-1-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one trihydrochloride (135 mg, 81%).

Example 15 : Synthesis of (S)-2-(3-(4-methoxybiphen-4-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one (No. XA1991)

A mixture of (S)-2-(4-bromophenyl)-1,4-di(t-butoxycarbonyl)piperazine (1.82 g, 4.11 mmol), 4-methoxyphenylboronic acid (937 mg, 6.17 mmol), sodium

carbonate (2.18 g, 20.6 mmol), and tetrakis(triphenylphosphine)palladium(0) (238 mg, 0.206 mmol) was dissolved in dimethoxyethane (20 mL) and water (20 mL), and the resulting solution was refluxed for 3 h. After cooling to room temperature, the mixture was partitioned between ethyl acetate and water. The organic layer was washed with brine, dried over anhydrous sodium sulfate, and concentrated in vacuo. The resulting solid was washed with ethyl acetate to afford (S)-1,4-di(t-butoxycarbonyl)-2-(4'-methoxybiphen-4-yl) piperazine (1.46 g, 75.9%) as a white solid.

To a solution of (S)-1,4-di(t-butoxycarbonyl)-2-(4'-methoxybiphen-4-yl)-piperazine (1.46 g, 3.12 mmol) in dichloromethane (8 mL) was added 4 N hydrogen chloride in ethyl acetate (8 mL) at room temperature. After stirring for 1 h, the precipitate was collected and dried in vacuo to afford (S)-2-(4'-methoxybiphen-4-yl) piperazine dihydrochloride (1.00 g, 94%) as white solid.

To a suspension of (S)-2-(4'-methoxybiphen-4-yl)-piperazine dihydrochloride (237 mg, 0.694 mmol) in tetrahydrofuran (5 mL) was added triethylamine (0.40 mL, 2.9 mmol) and then 2-chloro-3-methyl-6-(4-pyridyl)-3H-pyrimidin-4-one (128 mg, 0.579 mmol) at room temperature. After stirring for 28 h, the resulting mixture was concentrated in vacuo. The residue was partitioned between dichloromethane and saturated sodium bicarbonate aqueous solution, and the organic layer was dried over anhydrous sodium sulfate and then concentrated in vacuo. The resulting solid was washed with hot ethanol to afford (S)-2-(3-(4-methoxybiphen-4-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one (252 mg, 96%), which was treated with 4 N hydrogen chloride in ethyl acetate to yield its dihydrochloride salt (252 mg) as pale yellow crystals.

Example 16 : Synthesis of (S)-2-(3-benzylpiperazin-1-yl)-3-methyl-6-(4-pyridyl) pyrimidin-4-one (No. XA2004)

To a solution of L-phenylalanine ethyl ester hydrochloride (3.875 g, 16.87

mmol), Boc-glycine (2.815 g, 16.07 mmol) in dichloromethane (100 mL) was added triethylamine (2.35 mL ,16.87 mmol) and then 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride (3.23 g, 16.87 mmol) at room temperature. After the resulting mixture was stirred for 2.5 h, it was partitioned between ethyl acetate and water. The organic layer was washed with 1 N hydrochloric acid, brine, and then saturated sodium bicarbonate aqueous solution, dried over anhydrous sodium sulfate, and concentrated in vacuo to afford Boc-glyclylphenylalanine ethyl ester (5.96 g).

To a solution of Boc-glycylphenylalanine ethyl ester (5.96 g) in dichloromethane (20 ml) was added trifluoroacetic acid (20 mL) at room temperature. After stirring 1.5 h, the resulting solution was concentrated in vacuo. The residue was dissolved in water, into which sodium bicarbonate was added until the pH was 9. After the solution was stirred for several hours, the resulting white crystals were collected and dried in vacuo to afford (S)-3-benzyl-2,5-dioxopiperazine (2.29 g, 70% in 2 steps) as a white powder.

To a suspension of (S)-3-benzyl-2,5-dioxopiperazine (2.284 g, 11.18 mmol) in tetrahydrofuran (20 mL) was added borane-tetrahydrofuran complex (49 mL, 1.0 M solution in THF, 49 mmol) at room temperature. The resulting mixture was refluxed for several hours before it was quenched with methanol at 0 °C. After concentration in vacuo, the residue was treated with 10% sodium hydroxide aqueous solution, which was extracted with dichloromethane thoroughly. The organic layer was washed with water, dried over anhydrous sodium sulfate, and concentrated in vacuo to afford white crystals, which were washed with ether to yield (S)-2-benzylpiperazine (795 mg, 40.3%).

To a solution of (S)-2-benzylpiperazine (48 mg, 0.27 mmol) in tetrahydrofuran (5 mL) was added triethylamine (0.10 mL, 0.74 mmol) and then 2-chloro-3-methyl-6-(4-pyridyl)-3H-pyrimidin-4-one (55 mg, 0.248 mmol) at room temperature. After refluxing for 24 h, the resulting mixture was concentrated in

vacuo. The residue was partitioned between dichloromethane and saturated sodium bicarbonate aqueous solution, and the organic layer was dried over anhydrous sodium sulfate and then concentrated in vacuo. The residue was purified by a reverse phase chromatography eluting 0.05% TFA in water-acetonitrile to afford (S)-2-(3-benzylpiperazin-1-yl)-3-methyl-6-(4-pyridyl) pyrimidin-4-one (73 mg 81%), which was treated with 4 N hydrogen chloride in ethyl acetate to yield its dihydrochloride salt as a yellow powder.

Example 17 : Synthesis of (S)-3-methyl-2-(3-(4-(1,2,4-oxadiazol-3-yl)phenyl) piperazin-1-yl)-6-(4-pyridyl)pyrimidin-4-one (No. XA2039)

To a solution of 4-cyanoacetophenone (11.32 g, 77.98 mmol) in dichloromethane (200 mL) was added bromine (4.00 mL, 78.0 mmol) dropwise at room temperature. After stirring several minutes, the reaction mixture was washed with water, dried over anhydrous sodium sulfate, and concentrated in vacuo to afford 4-cyanophenacyl bromide (17.73 g) as a white solid.

A solution of 4-cyanophenacyl bromide (11.20 g, 49.99 mmol) in dimethylsulfoxide (83 mL) was treated with water (0.90 mL, 49.99 mmol). After stirring for 24 h at room temperature, it was poured into ice-water, and extracted with ether. The organic layer was washed with water and then brine, dried over anhydrous sodium sulfate, and concentrated in vacuo. The residue was purified by a silica gel column chromatography eluting 20-50% ethyl acetate in hexane to afford 4-cyanophenylglyoxal (5.10 g, 64.1%) as a yellow solid.

To a solution of 4-cyanophenylglyoxal (2.21 g, 12.5 mmol) in methanol (30 mL) and tetrahydrofuran (10 mL) was added ethylenediamine (1.00 mL, 14.96 mmol) at room temperature. After the mixture was stirred at room temperature for 1 h, sodium borohydride (943 mg, 24.92 mmol) was added at 0 °C. The solution was warmed up to room temperature and stirred for another 2 h before it was quenched with 1 N hydrochloric acid. After concentration in vacuo, the mixture was

partitioned between ether and water. The aqueous layer was alkalized with sodium hydroxide, and extracted with dichloromethane. The extract was dried over anhydrous sodium sulfate, and then concentrated in vacuo to afford reddish oil (1.69 g). The oil was dissolved in dichloromethane (30 mL), into which triethylamine (3.82 mL ,27.41 mmol) and di-tert-butyl dicarbonate (5.98 g, 27.41 mmol) at room temperature. The reaction mixture was stirred for several hours before it was partitioned between ethyl acetate and water. The organic layer was dried over anhydrous sodium sulfate, and then concentrated in vacuo. The residue was purified by a silica gel column chromatography eluting 5-20% ethyl acetate in hexane to afford 1,4-di(t-butoxycarbonyl)-2-(4-cyanophenyl)piperazine (2.46 g, 50.9%) as white crystals.

A solution of 1,4-di(t-butoxycarbonyl)-2-(4-cyanophenyl)piperazine (558 mg, 1.44 mmol), hydroxylamine hydrochloride (300 mg, 4.23 mmol), and sodium carbonate (763 mg, 7.20 mmol) in ethanol (3 mL) and water (3 mL) was heated at 80 °C for 2.5 h before it was partitioned between dichloromethane and water. The aqueous layer was extracted with dichloromethane. The combined organic layer was dried over sodium sulfate, and concentrated in vacuo to afford white foam (680 mg), which was dissolved in toluene (5 mL) and treated with triethyl orthoformate (2.4 mL, 14.4 mmol) and p-toluenesulfonic acid (27 mg, 0.14 mmol). The solution was heated at 90 °C for 1 h before it was partitioned between dichloromethane and saturated sodium bicarbonate aqueous solution. The organic layer was dried over anhydrous sodium sulfate, and concentrated in vacuo. The resulting white crystals were washed with ethyl acetate, and dried in vacuo to afford 1,4-di(t-butoxycarbonyl)-2-(4-(1,2,4-oxadiazol-3- yl)phenyl)piperazine (464 mg, 75% in 2 steps).

To a solution of 1,4-di(t-butoxycarbonyl)-2-(4-(1,2,4-oxadiazol-3-yl) phenyl)piperazine (464 mg, 1.08 mmol) in dichloromethane (2 mL) was added 4 N hydrogen chloride in ethyl acetate (3 mL) at room temperature. After stirring for

1.5 h, the precipitate was collected and dried in vacuo to afford 2-(4-(1,2,4-oxadiazol-3-yl)phenyl)piperazine dihydrochloride (321 mg, 98%) as a white powder.

To a suspension of 2-(4-(1,2,4-oxadiazol-3-yl)phenyl)piperazine dihydrochloride (102 mg, 0.34 mmol) in tetrahydrofuran (6 mL) was added triethylamine (0.23 mL, 1.65 mmol) and then 2-chloro-3-methyl-6-(4-pyridyl)-3H-pyrimidin-4-one (73 mg, 0.33 mmol) at room temperature. After stirring for 24 h, the resulting mixture was concentrated in vacuo. The residue was dissolved in dichloromethane and saturated sodium bicarbonate aqueous solution, and the solution was passed through CHEM ELUT CE1010 (manufactured by VARIAN). The filtrate was concentrated in vacuo to yield crystals, which were washed with diisopropyl ether and ethanol to afford (S)-2-(3-(4-(1,2,4-oxadiazol-3-yl)phenyl) piperazin-1-yl)-3-methyl-6-(4-pyridyl)pyrimidin-4-one (102 mg 74%) as a white powder.

Example 18 : Synthesis of 2-[4-(2-Methoxyphenylamino)-piperidin-1-yl]-3-methyl-6-(pyridin-4-yl)-3H-pyrimidin-4-one (No. XB276)

To a solution of anisidine (3.1g, 25.2 mmol) and 4-oxo-piperidine-1-carboxylic acid tert-butyl ester (5.0 g, 25.1 mmol) in methanol (100 mL) was added sodium triacetoxyborohydride (13.4 g, 63.2 mmol) at room temperature. After stirring for 6 h, the resulting suspension was partitioned between ethyl acetate and 1N sodium hydroxide. The aqueous layer was extracted with ethyl acetate. The combined organic layer was washed with brine, dried over magnesium sulfate, and concentrated *in vacuo*. The residue was purified by silica gel chromatography eluting 10-20 % ethyl acetate in hexane to furnish 4-(2-methoxyphenylamino)-piperidine-1-carboxylic acid tert-butyl ester (2.7g, 8.8mmol, 35%) as a pale yellow oil.

To a solution of 4-(2-methoxyphenylamino)-piperidine-1-carboxylic acid tert-butyl ester (2.7g, 8.8mmol) in methanol (30 mL) was added 4N hydrochloric

acid in ethyl acetate (20 mL) at room temperature. After stirring for 1h, the resulting suspension was concentrated *in vacuo*. The residue was partitioned between chloroform and 1N sodium hydroxide. The aqueous layer was extracted with chloroform. The combined organic layer was washed with brine, dried over magnesium sulfate, and concentrated *in vacuo*. The residue was purified by silica gel chromatography eluting 10-20% methanol in chloroform to furnish 4-(2-methoxyphenylamino)-piperidine (1.8 g, 8.7 mmol, 99%) as white crystals.

To a solution of 4-(2-methoxyphenylamino)-piperidine (0.8 g, 3.87 mmol) and triethylamine (1.3 g, 12.8 mmol) in tetrahydrofuran (20 mL) was added 2-chloro-3-methyl-6-(pyridin-4-yl)-3H-pyrimidin-4-one (0.8 g, 3.61 mmol) portionwise. After stirring for 12 h, the resulting suspension was partitioned between chloroform and 1N sodium hydroxide. The aqueous layer was extracted with chloroform. The combined organic layer was washed with brine, dried over magnesium sulfate, and concentrated *in vacuo*. The residue was purified by silica gel chromatography eluting 5-10% methanol in chloroform to furnish 2-(4-(2-methoxyphenylamino)-piperidin-1-yl)-3-methyl-6-(pyridin-4-yl)-3H-pyrimidin-4-one (1.2 g, 3.07 mmol, 85%) as white crystals.

Example 19 : Synthesis of 3-Methyl-2-(3-(4-(4-methylpiperazin-1-yl)-phenyl)-piperidin-1-yl)-6-(pyridin-4-yl)-3H-pyrimidin-4-one (No. XB278)

A solution of (4-bromo-phenyl)-acetic acid ethyl ester (2.31 g, 9.50 mmol) in dimethylsulfoxide (6 mL) was added to the suspension of sodium hydride (407 mg, 60% in oil, 10.17 mmol) and stirred 3 min. A solution of (3-bromo-propyl)-carbamic acid tert-butyl ester (2.03 g, 8.52 mmol) in dimethylsulfoxide (6 mL) was added to the solution and stirred at 50 °C for 30 min. The resulting solution was partitioned between ethyl acetate and saturated aqueous ammonium chloride. The aqueous layer was extracted with ethyl acetate. The combined organic layer was washed with water and brine, dried by passing through Celite column, and concentrated *in*

vacuo. The residue was purified by silica gel chromatography eluting ethyl acetate / hexane (4/1 to 3/1, v/v) to afford 3-(4-Bromo-phenyl)-6-tert-butoxycarbonylamino-hexanoic acid ethyl ester (2.43 g, 74%).

To a solution of 3-(4-Bromo-phenyl)-6-tert-butoxycarbonylamino-hexanoic acid ethyl ester (2.43 g, 6.32 mmol) in ethyl acetate (3 mL) was added 4 N hydrogen chloride in ethyl acetate (6 mL) at room temperature. Removal of the solvent in vacuo after stirring for 30 min afforded 6-Amino-3-(4-bromo-phenyl)-hexanoic acid ethyl ester hydrochloride that was used in the next step without further purification.

A solution of 6-amino-3-(4-bromo-phenyl)-hexanoic acid ethyl ester hydrochloride, potassium carbonate (1039 mg, 7.52 mmol) in ethanol (50 ml) was refluxed for 20 hr. Solvent was removed in vacuo after addition of dilute hydrochloric acid and water was added to the residue. Filtration, wash with water and dryness afforded 3-(4-Bromo-phenyl)-piperidin-2-one (1387 mg, 86%, 2 steps).

To an ice-cooled solution of 3-(4-bromo-phenyl)-piperidin-2-one (37.97 g, 149 mmol) in tetrahydrofuran (250 ml) was added borane-tetrahydrofuran complex (335 ml, 1.0 M solution in THF, 335 mmol). The solution was stirred overnight at room temperature, and then refluxed 1.5 hr after addition of 10% aqueous hydrochloric acid. Solvents was removed in vacuo, and the residue was partitioned between dichloromethane and 1N sodium hydroxide. The aqueous layer was extracted with dichlorometane. The combined organic layer was washed with water and brine, dried over sodium sulfate, and concentrated *in vacuo*. The residue was dissolved in water (100 mL) and concentrated hydrochloric acid (100 mL) and refluxed for 3 hr. Sodium hydroxide was added to the solution and the resulting solution was extracted with dichlorometane. The organic layer was washed with water and brine, dried over sodium sulfate Concentration *in vacuo* afforded 3-(4-bromo-phenyl)-piperidine (32 18 g, 90%).

To a suspension of 3-(4-bromophenyl)-piperidine (25.2 g, 105 mmol), and

triethylamine (13 g, 128 mmol) in tetrahydrofuran (250 mL) was added di-tert-butyl-dicarbonate (25.2 g, 105 mmol) at room temperature. After stirring for 1 h, the resulting suspension was partitioned between ethyl acetate and 1N sodium hydroxide. The aqueous layer was extracted with ethyl acetate. The combined organic layer was washed with brine, dried over magnesium sulfate, and concentrated *in vacuo*. The residue was washed by hexane to furnish 3-(4-bromophenyl)- piperidine-1-carboxylic acid tert-butyl ester (35.7 g, 105 mmol, 100%) as white crystals.

To a suspension of 3-(4-bromophenyl)-piperidine-1-carboxylic acid tert-butyl ester (3.0 g, 8.8 mmol), palladium acetate (80 mg, 0.36 mmol), 2-(di-t-butyl phosphino)biphenyl (210 mg, 0.70 mmol), and sodium t-butoxide (1.2 g, 125 mmol) in toluene (30 mL) was added N-methylpiperazine (1.3 g, 13.0 mmol) at room temperature. After heating at 90 °C for 5 h, the resulting suspension was passed through a Celite column. The filtrate was concentrated under reduced pressure, and the residue was purified by silica gel chromatography eluting 5-25% of ethyl acetate in hexane to afford 3-(4-(4-methylpiperazin-1-yl)-phenyl)-piperidine-1-carboxylic acid tert-butyl ester (2.0 g, 5.56 mmol, 63%) as white crystals.

To a solution of 3-(4-(4-methylpiperazin-1-yl)-phenyl)-piperidine-1-carboxylic acid tert-butyl ester (2.0 g, 5.56 mmol) in methanol (20 mL) was added 4N hydrochloric acid in ethyl acetate (20 mL) at room temperature. After stirring for 1h, the resulting suspension was concentrated *in vacuo*. The residue was washed with ethyl acetate to furnish 3-(4-(4-methylpiperazin-1-yl)-phenyl)-piperidine trihydrochloride (1.84 g, 4.99 mmol, 90%) as white crystals.

To a solution of 3-(4-(4-methylpiperazin-1-yl)-phenyl)-piperidine trihydrochloride salt (0.4 g, 1.08 mmol) and triethylamine (0.6 g, 5.93 mmol) in tetrahydrofuran (10 mL) was added 2-chloro-3-methyl-6-(pyridin-4-yl)-3H-pyrimidin-4-one (0.22 g, 0.99 mmol) portionwise. After stirring for 12 h, the

resulting suspension was partitioned between chloroform and 1N sodium hydroxide. The aqueous layer was extracted with chloroform. The combined organic layer was washed with brine, dried over magnesium sulfate, and concentrated *in vacuo*. The residue was purified by silica gel chromatography eluting 5-10% methanol in chloroform to furnish 3-methyl-2-(3-(4-(4-methylpiperazin-1-yl)-phenyl)-piperidin-1-yl)-6-(piridin-4-yl)-3H-pyrimidin-4-one (0.31 g, 0.70 mmol, 71%) as white crystals.

Example 20 : Synthesis of 2-(3-(4-cyclohexylaminophenyl)-piperidin-1-yl)-3-methyl-6-(pyridin-4-yl)-3H-pyrimidin-4-one (No. XB301)

To a suspension of 3-(4-bromophenyl)-piperidine-1-carboxylic acid tert-butyl ester (8.0 g, 23.5 mmol), palladium acetate (210 mg, 0.94 mmol), 2-(di-t-butyl phosphino)biphenyl (560 mg, 1.88 mmol), and sodium t-butoxide (3.2 g, 33.3 mmol) in toluene (80 mL) was added cyclohexylamine (2.8 g, 28.2 mmol) at room temperature. After heating at 90 °C for 5 h, the resulting suspension was passed through a Celite column. The filtrate was concentrated under reduced pressure, and the residue was purified by silica gel chromatography eluting 5-25% of ethyl acetate in hexane to afford 3-(4-cyclohexylaminophenyl)-piperidine-1-carboxylic acid tert-butyl ester (6.74 g, 18.8 mmol, 80%) as white crystals.

To a solution of 3-(4-cyclohexylaminophenyl)-piperidine-1-carboxylic acid tert-butyl ester (6.74 g, 18.8 mmol) in methanol (50 mL) was added 4N hydrochloric acid in ethyl acetate (40 mL) at room temperature. After stirring for 1 h, the resulting suspension was concentrated *in vacuo*. The residue was washed with ethyl acetate to furnish 3-(4-cyclohexylaminophenyl)-piperidine dihydrochloride (5.84 g, 17.6 mmol, 94%) as white crystals.

To a solution of 3-(4-cyclohexylaminophenyl)-piperidine dihydrochloride salt (1.0 g, 3.02 mmol) and triethylamine (1.5 g, 14.8 mmol) in tetrahydrofuran (20

mL) was added 2-chloro-3-methyl-6-(pyridin-4-yl)-3H-pyrimidin-4-one (0.64 g, 2.89 mmol) portionwise. After stirring for 12 h, the resulting suspension was partitioned between chloroform and 1N sodium hydroxide. The aqueous layer was extracted with chloroform. The combined organic layer was washed with brine, dried over magnesium sulfate, and concentrated *in vacuo*. The residue was purified by silica gel chromatography eluting 5-10% methanol in chloroform to furnish 2-(3-(4-cyclohexylaminophenyl)-piperidin-1-yl)-3-methyl-6-(pyridin-4-yl)-3H-pyrimidin-4-one (1.23 g, 2.77 mmol, 96%) as white crystals.

Example 21 : Synthesis of 2-(4-(4-Bromo-phenyl)-piperidin-1-yl)-3-methyl-6-pyridin- 4-yl-3H-pyrimidin-4-one (No. XB267)

Mixture of 4-bromobenzaldehyde (22.40 g, 121.1 mmol), dimethyl malonate(19.37 g, 146.6 mmol), cat. acetic acid and cat. piperidine in toluene (100 ml) were refluxed for 6 h with azeotropically removal of water. Resulting solution was partitioned between ethyl acetate and water. The aqueous layer was extracted with ethyl acetate. The combined organic layer was washed with water, saturated aqueous sodium bicarbonate and brine, dried over sodium sulfate. Concentration of the organic solvent in vacuo afforded 2-(4-bromo-benzylidene)-malonic acid diethyl ester as an oil that was used in the next step without further purification.

To an ice-cooled solution of dimethyl malonate (19.35 g, 146.5 mmol) and sodium methoxide (30. 12g in 28% methanol solution, 156.1 mmol) in methanol (300 ml) was added 2-(4-bromo-benzylidene)-malonic acid diethyl ester in methanol (50 ml). After stirring for 3 h, the solvent was removed in vacuo and the residue was partitioned between ethyl acetate and dilute hydrochloric acid. The aqueous layer was extracted with ethyl acetate. The combined organic layer was washed with brine, dried over sodium sulfate. Concentration of the organic solvent in vacuo afforded 3-(4-bromo-phenyl)-2,4-bis-ethoxycarbonyl-pentanedioic acid diethyl ester as an oil that was used in the next step without further purification.

A solution of 3-(4-bromo-phenyl)-2,4-bis-ethoxycarbonyl-pentanedioic acid diethyl ester in concentrated hydrochloric acid (100 ml) and acetic acid (100 ml) was refluxed for 8 h. Removal of the solvent in vacuo and recrystallization of the residue from acetonitrile yielded 3-(4-bromo-phenyl)-pentanedioic acid (22.84 g in 1st crop, 65%, 3.84 g in 2nd crop, 11.05% from 4-bromobenzaldehyde).

A solution 3-(4-bromo-phenyl)-pentanedioic acid (26.68 g, 92.9 mmol) in acetic anhydride (100 ml) was refluxed for 1.5 hr. Removal of the solvent in vacuo, and remaining solvent were azeotropically removed using toluene. Teterahydrofuran (200 ml) and aqueous ammonia (28%, 50 ml) was added to the residue and stirred overnight. After removal of the solvent in vacuo, acetic anhydride (100 ml) was added and refluxed for 4 hr. After removal of the solvent in vacuo and succeeding azeotropic distillation with toluene, residue was partitioned between ethyl ether and water. Filtration of the suspension and dryness afforded the 4-(4-bromo-phenyl)-piperidine-2,6-dione (12.53 g, 50%) as a solid.

To an ice-cooled solution of lithium tetrahydroborate (4.13 g, 189.6 mmol) in tetrahydrofuran (200 ml) was added chlorotrimethylsilane (41.52 g, 382.2 mmol). After stirring 5 min, a solution of 4-(4-bromo-phenyl)-piperidine-2,6-dione (12.53 g, 46.7 mmol) was added and stirred overnight. The resulting solution was concentrated in vacuo after addition of 10% aqueous hydrochloric acid. The residue was dissolved in aqueous sodium hydroxide solution and methanol, and a solution of di-tert-butyl dicarbonate (11.45 g, 52.5 mmol) in methanol (10 ml) was added and stirred for 6 h. After removal of the solvent in vacuo, concentrated hydrochloric acid wad added and stirred overnight. After extraction of the solution by diethyl ether, sodium hydroxide was added to the aqueous layer to turn basic, and extracted with dichloromethane. The organic layer was washed with brine, dried over sodium sulfate. The residue of the diethyl ether and dichloromethane after removal of the solvents under reduced pressure was mixed and dissolved in tetrahydrofuran (200 ml). A solution of di-tert-butyl dicarbonate (7.45 g, 34.1 mmol) in tetrahydrofuran

(10 ml) and triethylamine were added and stirred overnight. The resulting solution was concentrated *in vacuo*. Purification of the residue by silica gel chromatography eluting hexane / ethyl acetate (5/1, v/v) furnished 4-(4-bromo-phenyl)-piperidine-1-carboxylic acid tert-butyl ester (14.4g, 91%) as a solid.

To a solution of furnished 4-(4-bromophenyl)-piperidine-1-carboxylic acid tert-butyl ester (1114 mg, 3.27 mmol) in ethyl acetate (1 mL) was added 4 N hydrogen chloride in ethyl acetate (2 mL) at room temperature. After stirring for 5 h, solvent was removed in vacuo, and the resulting solid was washed with ethyl acetate and dried in vacuo to afford (4-(4-bromophenyl)-piperidine hydrochloride (884 mg, 98%) as a white solid.

A solution of (4-(4-bromophenyl)-piperidine hydrochloride (279 mg, 1.01 mmol) and triethylamine (554 mg, 5.47 mmol), 2-chloro-3-methyl-6- (pyridin-4-yl)-3H-pyrimidin-4-one (206 mg, 0.929 mmol) in tetrahydrofuran (20 mL) was stirred for 3 hr. The resulting solution was diluted with tetrahydrofuran and filtrated. After removal of the solvents under reduced pressure and the purification of the resulting residue by CHEM ELUT CE1010 (manufactured by VARIAN) eluting dichloromethane / ethanol (15/1, v/v) and wash with ethyl acetate afforded 2-(4-(4-Bromophenyl)-piperidin-1-yl)-3-methyl-6-pyridin- 4-yl-3H-pyrimidin-4-one (368 mg, 93%) as a solid.

Example 22 : Synthesis of 3-Methyl-6-pyridin-4-yl-2-[4-(4-pyrrolidin-1-yl-phenyl)-piperidin-1-yl]-3H-pyrimidin-4-one (No. XB269)

A suspension of 4-(4-Bromophenyl)-piperidine-1-carboxylic acid tert-butyl ester (1.97 g, 5.79 mmol), palladium acetate (54 mg, 0.24 mmol), 2-(di-t-butylphosphino)biphenyl (154 mg, 0.52 mmol), and sodium t-butoxide (846 mg, 8.80 mmol), pyrrolidine (587 mg, 8.25 mmol) in toluene (80 mL) was heated at 90 °C for 3 h under nitrogen atmosphere. The resulting suspension was passed through a

Celite column and partitioned between ethyl acetate and water. The aqueous layer was extracted with ethyl acetate. The combined organic layer was washed with brine, dried over sodium sulfate, and concentrated *in vacuo*. Purification of the residue by HPLC afforded 4-(4-pyrrolidin-1-yl-phenyl)-piperidine-1-carboxylic acid tert-butyl ester as a solid that was used in the next step without further purification.

To a solution of furnished 4-(4-Pyrrolidin-1-yl-phenyl)-piperidine-1-carboxylic acid tert-butyl ester in ethyl acetate (5 mL) was added 4 N hydrogen chloride in ethyl acetate (10 mL) at room temperature. After stirring for 3 h, solvent was removed in vacuo, and the resulting solid was purified by HPLC. Sodium hydroxide was added to the resulting fractions and the aqueous layer was extracted by dichloromethane. Organic layer was washed with brine, and passed through Cerite. Removal of the solvent under reduced pressure afforded 4-(4-pyrrolidin-1-yl- phenyl)-piperidine (1.01 g, 76%).

A solution of 4-(4-pyrrolidin-1-yl-phenyl)-piperidine (215 mg, 0.933 mmol) and triethylamine (391 mg, 3.86 mmol), 2-chloro-3-methyl-6-(pyridin-4-yl)-3H-pyrimidin-4-one (187 mg, 0.844 mmol) in tetrahydrofuran (10 mL) was refluxed for 5 hr. The resulting solution was diluted with tetrahydrofuran and filtrated. After removal of the solvents under reduced pressure and the purification of the resulting residue by CHEM ELUT CE1010 (manufactured by VARIAN) eluting dichloromethane / ethanol (15/1, v/v) and wash with ethyl acetate afforded 3-methyl-6-pyridin-4-yl-2-(4-(4-pyrrolidin-1-yl-phenyl)-piperidin-1-yl)-3H-pyrimidin-4-one (284 mg, 81%) as a solid.

Example 23: Synthesis of 2-(4-(6-Fluorobenzo[*b*]thiophen-3-yl)piperidin-1-yl)-1-methyl-1*H*-[4,4']bipyrimidinyl-6-one (No. YB253)

The key intermediate 4-(6-fluorobenzo[*b*]thiophen-3-yl)piperidine hydrochloride of 2-[4-(6-fluorobenzo[*b*]thiophen-3-yl)piperidin-1-yl]-1-methyl- 1*H*-

[4,4']bipyrimidinyl-6-one was synthesized from 1-acetylpipridine-4-carboxylic acid which was prepared according to the method reported by Watanabe (*J. Heterocyclic Chem.*, 30, 445 (1993)).

To a solution of 1-benzoylpiperidine-4-carboxylic acid (66 g, 285 mmol) in dichloromethane (160 mL) was added thionyl chloride (26 mL, 388 mmol). After stirring at 60°C for 1 h, the mixture was added portionwise to a stirred suspension of 2,4-difluorobenzene (45 g, 397 mmol) and anhydrous aluminum chloride (88 g, 666 mmol) in dichloromethane (245 mL), and the reaction mixture was refluxed for 5 h. The reaction mixture was poured into a mixture of ice and concentrated hydrochloric acid and extracted with chloroform. The organic layer was dried over sodium sulfate and the solvent was evaporated under reduced pressure. Recrystallization from hexane gave 1-benzoyl-4-(2,4 -difluorobenzoyl)piperidine (46 g, 50%) as colorless crystals.

A solution of 1-benzoyl-4-(2,4-difluorobenzoyl)piperidine (40 g, 120 mmol), methyl thioglycolate (12 mL, 130 mmol) in dimethylformamide (500 mL) was stirred at room temperatute for 12h. The solvent was evaporated off *in vacuo* and the residue treated with water and ethyl acetate. The organic layer was dried over sodium sulfate and the solvent was evaporated under reduced pressure. The obtained residue was purified by silica gel column chromatography eluting hexane/ethyl acetate to give 3-(1-benzoylpiperidin-4-yl)-6-fluorobenzo[*b*]thiophene-2 -carboxylic acid (11.8 g, 26%) as an oil.

3-(1-Benzoylpiperidin-4-yl)-6-fluorobenzo[*b*]thiophene-2-carboxylic acid (10 g, 26 mmol) was suspended in quinoline (100 mL) and cupper powder (0.5g) was added. After stirring at 200°C for 1 h, the mixture was cooled to room temperature and partitioned between ethyl acetate and water. The organic layer was dried over magnesium sulfate and evaporated. The obtained residue was purified by silica gel column chromatography eluting hexane/ ethyl acetate to give (4-(6-fluorobenzo[*b*]thiophen- 3-yl)piperidin-1-yl)phenylmethanone (5.0 g, 48%) as yellow

crystals.

A solution of (4-(6-fluorobenzo[*b*]thiophen-3-yl)piperidin-1-yl) phenylmethanone (6.5 g, 19 mmol) in acetic acid (100 mL) and concentrated hydrochloric acid (100 mL) was stirred at 90°C for 10 h. To a solution of reaction mixture was added ethyl acetate. The precipitated crystals were collected by filtration and washed with ethyl acetate to give 4-(6-fluorobenzo[*b*]thiophen-3-yl)piperidine hydrochloride (4.8 g, 89%) as yellow crystals.

To a solution of 4-(6-fluorobenzo[*b*]thiophen-3-yl)piperidine hydrochloride (200 mg, 0.74 mmol) and 2-chloro-1-methyl-1*H*-[4,4']bipyrimidinyl-6-one (160 mg, 0.70 mmol) in tetrahydrofuran (10 mL) was added triethylamine (212 mg, 2.1 mmol). The mixture was stirred at 90°C for 6 h. The solvent was evaporated off *in vacuo* and the residue was treated with water and chloroform. The organic layer was dried over sodium sulfate and the solvent was evaporated under reduced pressure. Recrystallization from ethyl acetate gave 2-[4-(6-fluorobenzo[*b*]thiophen-3-yl)piperidin-1-yl]-1-methyl-1*H*-[4,4']bipyrimidinyl-6-one (220 mg, 96%) as colorless crystals.

Example 24: Synthesis of 2-(4-(Biphenyl-2-yl)piperazin-1-yl)-1-methyl-1*H*-[4,4']bipyrimidinyl-6-one (No. YA1552)

To a solution of 1-biphenyl-2-yl-piperazine dihydrochloride (311 mg, 1.0 mmol) and 2-chloro-1-methyl-1*H*-[4,4']bipyrimidinyl-6-one (202 mg, 0.91 mmol) in tetrahydrofuran (20 mL) was added triethylamine (404 mg, 4.0 mmol). The mixture was stirred at 90°C for 4 h. The solvent was evaporated off *in vacuo* and the residue treated with water and chloroform. The organic layer was dried over sodium sulfate and the solvent was evaporated under reduced pressure. Recrystallization from ethyl acetate gave 2-[4-(biphenyl-2-yl)piperazin-1-yl]-1-methyl-1*H*-[4,4']bipyrimidinyl-6-one (250 mg, 65%) as colorless crystals.

The compounds in the following table were prepared in the same manner as the methods described above. The compound numbers in the following table correspond to those shown in the above-described table of preferred compounds.

Table 5

NO	NMR	Exact-MS
XA19	2.51-2.89(4H, m), 3.31-3.34(4H, m), 3.39(3H,s), 3.56(2H, s), 6.80(1H, s), 7.25-7.31(1H, m), 7.31-7.36(4H, m), 7.98(2H, dd, J=1.5, 4.8 Hz), 8.68(2H, dd, J=1.5, 4.5 Hz)(DMSO-d6)	362
XA25	3.32-3.34(4H, m), 3.46(3H, s), 3.48-3.51(4H, m), 6.80-6.85(1H, m), 6.84(1H, s), 7.01(2H, d, J=8.0 Hz), 7.23-7.28(2H, m), 8.00(2H, dd, J=1.3, 4.6 Hz), 8.70(2H, dd, J=1.5, 4.5 Hz)(DMSO-d6)	348
XA156	3.47(3H,s), 3.51-3.60(4H, m), 3.62-3.71(4H, m), 6.85(1H, s), 7.41-7.49(1H, m), 7.56-7.61(1H, m), 8.02(2H, dd, J=1.5, 4.5 Hz), 8.09(1H, d, J=8.1 Hz), 8.16(1H, d, J=8.1 Hz), 8.70(2H, dd, J=1.5, 4.8 Hz)(DMSO-d6)	405
XA289	1.11-1.28(3H, m), 2.98-3.16(1H, m), 3.28-3.41(1H, m), 3.39(3H, s), 3.54-3.80(3H, m), 3.88-3.99(1H, m), 4.08-4.26(4H, m), 4.32-4.45(1H, m), 7.13(1H, s), 7.37-7.53(5H, m), 8.45(2H, d, J=5.8 Hz), 8.96(2H, d, J=6.0 Hz) (DMSO-d6)	434
XA361	3.44(3H,s), 3.54-3.95(6H,m), 4.64(1H,brs), 7.11(1H,s), 7.42-7.51(3H,m), 7.74(2H,d,J=6.6Hz), 8.46(2H,d,J=5.7Hz), 8.94(2H,d,J=5.7Hz), 9.98(1H,brs), 10.46(1H, brs) (DMSO-d6).	348
XA364	(DMSO-d6): 3.41-3.76(4H, m), 3.48(3H, s), 3.89-4.01(2H, m), 4.96(1H, m), 7.16(1H, s), 7.33-7.58(3H, m), 8.11(1H, dd, J=7.2, 7.2Hz), 8.52(2H, d, J=6.6Hz), 8.97(2H, d, J=6.6Hz), 10.04(1H, m), 10.66(1H, m).	366
XA365	3.43(s, 3H), 3.51-3.96(m, 6H), 4.70(m, 1H), 7.00(s, 1H), 7.25(m, 1H), 7.54(m, 2H), 7.60(m, 1H), 8.20(d, J=5.7Hz, 2H), 8.80 (d, J=5.7Hz, 2H)(CDCl3)	366
XA366	2.27-2.85(1H, m), 2.94-3.08(3H, m), 3.43(3H,s), 3.59-3.67(2H, m), 3.94-3.97(1H, m), 6.81(1H, s), 7.19(2H, t, J=8.9 Hz), 7.50-7.55(2H, m), 7.96(2H, dd, J=1.6, 4.5 Hz), 8.68(2H, dd, J=1.5, 4.6 Hz)(DMSO-d6)	366

XA366 (HCl)	3.35-3.50(2H, m), 3.46(3H, s), 3.58-3.75(2H, m), 3.86-3.97(2H, m), 4.68(1H, t, J=9.3 Hz), 7.15(1H, s), 7.35(2H, t, J=9.0 Hz), 7.82-7.87(2H, m), 8.48(2H, d, J=6.6 Hz), 8.96(2H, d, J=6.3 Hz), 9.55-10.08(1H, m), 10.54-10.70(1H, m)(DMSO-d6)	366
XA369	(CDCl3) :2.81(1H,dd,J=10.4,12.5Hz), 3.18-3.40(3H,m), 3.50-3.80(5H,m), 4.50(1H,dd,J=2.5,10.1Hz), 6.67(1H,s), 7.20-7.45(3H,m), 7.74(1H,dd,J=1.9,7.6Hz), 7.81(2H,dd,J=1.4,4.6Hz), 8.70(2H,dd,J=1.4,4.6Hz).	382
XA370	(CDCl3) :3.01(1H,dd,J=10.4,12.5Hz), 3.10-3.30(3H,m), 3.50-3.80(5H,m), 4.04(1H,dd,J=2.7,10.8Hz), 6.67(1H,s), 7.20-7.45(4H,m), 7.50(1H,s), 7.80(2H,dd,J=1.5,4.8Hz), 8.71(2H,dd,J=1.5,5.1Hz).	382
XA371	3.44(3H,s), 3.44-3.71(7H,m), 3.90(2H,m), 4.66(1H,brs), 7.11(1H,s), 7.55(2H,d,J=8.4Hz), 7.78(2H,d,J=8.4Hz), 8.50(2H,d,J=5.7Hz), 8.95(2H,d,J=5.7Hz), 10.13(1H,brs), 10.60(1H,brs)(DMSO-d6)	382
XA376	(DMSO-d6):3.45(3H,s), 3.50-4.20(6H,m), 4.66(1H,br s), 7.12(1H,s), 7.72(4H,s), 8.44(2H,d,J=6.6Hz), 8.94(2H,d,J=6.6Hz), 10.00(1H,br s), 10.05(1H,br s).	426
XA391	3.37-3.93(6H, m), 3.48(3H, s), 3.87(3H, s), 4.89-4.95(1H, m), 7.04-7.12(2H, m), 7.17(1H, d, J=8.5 Hz), 7.45-7.51(1H, m), 7.75-7.81(1H, m), 8.29-8.38(2H, m), 8.83-8.91(2H, m), 9.66-9.77(1H, m), 9.91-10.10(1H, m)(DMSO)	378
XA392	(DMSO-d6) :3.30-3.58(5H,m), 3.58-3.80(2H,m), 3.81(3H,s), 3.85-4.00(2H,m), 4.58-4.75(1H,m), 7.03(1H,dd,J=1.8,8.1Hz), 7.11(1H, s), 7.26(1H,d,J=7.8Hz), 7.35-7.50(2H,m), 8.41(2H,d,J=5.7Hz), 8.92(2H,d,J=6.0Hz), 9.80-10.00(1H,brd), 10.30-10.60(1H,brd).	378
XA393	3.40-3.43(5H,m), 3.51-3.63(2H,m), 3.78(3H,s), 3.93(2H,m),4.58(1H,br), 7.02-7.06(3H,m), 7.64(2H,d,J=8.7Hz), 8.34(2H,d,J=6.3Hz), 8.88(2H,d,J=8.7Hz), 9.76(1H,br), 10.16(1H,br)(DMSO-d6)	378
XA396	1.30(3H, t, J=6.9 Hz), 3.38-3.54(1H, m), 3.49(3H, s), 3.65-3.79(1H, m), 3.84-3.98(2H, m), 4.02-4.18(2H, m), 4.84(1H, t, J=10.5 Hz), 7.04-7.16(2H, m), 7.15(1H, s), 7.39-7.45(1H, m), 7.89(1H, d, J=6.6 Hz), 8.49(2H, d, J=6.3 Hz), 8.95(2H, d, J=6.6 Hz), 9.92(1H, d, J=9.3 Hz), 10.51-10.64(1H, m)(DMSO-d6)	392

XA406	(DMSO-d6):3.64(2H,m), 3.94(2H,t,J=11.4Hz), 4.02-4.40(5H,m), 4.78(1H,t,J=10.4Hz), 7.06(1H,s), 7.98(2H,d,J=8.3Hz), 8.01(2H,d,J=8.3Hz), 8.23(1H,dd,J=1.2,5.1Hz), 9.02(1H,d,J=5.1Hz), 9.31(1H,d,J=1.2Hz), 10.03(1H,d,J=8.7Hz), 10.57(1H,s).	373
XA433	(CDCl3):2.00(4H,m), 3.03(1H,dd,J=10.8,12.0Hz), 3.21(3H,m), 3.29(4H,m), 3.57(3H,s), 3.62(2H,m), 3.90(1H,dd,J=2.7,10.8Hz), 6.57(2H,d,J=8.7Hz), 6.66(1H,s), 7.29(2H,d,J=8.7Hz), 7.80(2H,d,J=4.8Hz), 8.70(2H,d,J=4.8Hz).	417
XA439	(CDCl3):3.02(1H,dd,J=10.7,12.4Hz), 3.18(7H,m), 3.55(3H,s), 3.62(2H,m), 3.87(4H,m), 3.96(1H,dd,J=2.5,11.1Hz), 6.66(1H,S), 6.93(2H,d,J=8.7Hz), 7.36(2H,d,J=8.7Hz), 7.79(2H,d,J=4.5Hz), 8.70(2H,d,J=4.5Hz).	434
XA442	(CDCl3):2.36(3H,s), 2.59(4H,m), 3.02(1H,t,J=11.6Hz), 3.22(7H,m), 3.55(3H,s), 3.63(2H,m), 3.94(1H,d,J=10.5Hz), 6.66(1H,s), 6.93(2H,d,J=8.7Hz), 7.34(2H,d,J=8.7Hz), 7.80(2H,d,J=4.5Hz), 8.70(2H,d,J=4.5Hz).	446
XA463	3.41-3.54(3H, m), 3.48(3H, s), 3.69-3.73(1H, m), 3.78(3H, s), 3.82(3H, s), 3.86-3.93(2H, m), 4.89(1H, t, J=10.5 Hz), 6.97-7.01(1H, m), 7.08(1H, d, J=9.0 Hz), 7.15(1H, s), 7.66(1H, d, J=3.0 Hz), 8.51(2H, d, J=6.3 Hz), 8.96(2H, d, J=6.3 Hz), 9.93(1H, d, J=9.0 Hz), 10.60-10.73(1H, m)(DMSO-d6)	408
XA464	(DMSO-d6): 3.45(3H, s), 3.38-3.81(6H, m), 3.88(6H, s), 5.06(1H, m), 6.82(2H, d, J=8.7Hz), 7.04(1H, s), 7.44(1H, t, J=8.4Hz), 8.20(1H, m), 8.30(2H, d, J=6.3Hz), 8.87(2H, d, J=6.3Hz), 10.07(1H, m).	408
XA468	3.40-3.50(4H, m), 3.47(3H, s), 3.83-3.94(2H, m), 3.88(3H, s), 4.81-4.91(1H, m), 6.92-6.99(1H, m), 7.07-7.10(1H, m), 7.12(1H, s), 7.79-7.91(1H, m), 8.30-8.40(2H, m), 8.85-8.92(2H, m), 9.70-9.79(1H, m), 10.02-10.23(1H, m)(DMSO)	396
XA469/ XA470	(DMSO-d6) :3.38-3.60(6H,m), 3.60-3.80(1H,m) 3.80-4.00(5H,m), 4.80-4.97(1H,m), 6.85-7.00(1H,m), 7.09(1H,dd,J=2.4,11.4Hz), 7.13(1H,s), 7.95(1H,dd,J=6.9,8.7Hz), 8.46(2H,d,J=6.6Hz), 8.94(2H,d,J=6.3Hz), 9.80-10.00(1H,brd), 10.35-10.60(1H,brd).	396
XA472	3.36-4.00(6H, m), 3.46(3H, s), 3.94(3H, s), 4.94-5.02(1H, m), 6.96-7.01(1H, m), 7.05(1H, d, J=8.6 Hz), 7.14(1H, s), 7.49-7.58(1H, m), 8.44-8.50(2H, m), 8.52-8.64(1H, m), 8.96(2H, d, J=6.6 Hz), 10.49-10.60(1H, m)(DMSO)	396

XA480	2.78(1H, dd, J=10.0, 12.1 Hz), 3.18-3.27(3H, m), 3.59(3H, s), 3.64-3.74(2H, m), 3.86(3H, s), 4.37(1H, dd, J=2.4, 10.1 Hz), 6.67(1H, s), 6.89(1H, d, J=2.1 Hz), 6.99(1H, dd, J=1.7, 8.0 Hz), 7.50(1H, d, J=8.2 Hz), 7.82(2H, dd, J=1.5, 4.8 Hz), 8.71(2H, dd, J=1.8, 4.5 Hz)(CDCl3)	412
XA490 (2HCl)	3.35-3.94(6H, m), 3.49(3H, s), 4.71-4.80(1H, m), 7.02-7.11(1H, m), 7.18-7.28(2H, m), 7.98-8.10(1H, m), 8.31-8.48(2H, m), 8.87-8.97(2H, m), 9.79-9.92(1H, m), 10.18-10.39(1H, m) (DMSO)	380
XA501	(CDCl3) :2.77(1H,dd,J=10.2,12.0Hz), 3.15-3.35(3H,m), 3.50-3.80(5H,m), 3.84(3H,s), 4.39(1H,d,J=7.8Hz), 6.67(1H,s), 6.78(1H,d,J=8.8Hz), 7.39(1H,dd,J=2.4,8.7Hz), 7.71(1H,d,J=2.3Hz), 7.82(2H,d,J=6.0Hz), 8.71(2H,d,J=6.0Hz).	456
XA510	(CDCl3): 1.98-2.05(4H, m), 2.85(1H, dd, J=12, 10.5Hz), 3.17-3.24(7H, m), 3.58(3H, s), 3.65-3.72(2H, m), 3.85(3H, s), 4.28(1H, dd, 10.5, 2.7Hz), 6.10(1H, d, J=2.1Hz), 6.18(1H, dd, J=8.7, 2.1Hz), 6.65(1H, s), 7.33(1H, d, J=8.4Hz), 7.83(2H, dd, J=4.5, 1.8Hz), 8.70(2H, dd, J=4.5, 1.5Hz).	447
XA511	(CDCl3) :1.90-2.05(4H,m), 2.93(1H,t,J=12.0Hz), 3.15-3.40(7H,m), 3.59(3H,s), 3.65-3.85(5H,m), 4.11(1H,dd,J=2.1,10.2Hz), 6.49(1H,dd,J=3.0,9.0Hz), 6.66(1H,s), 7.83(2H,dd,J=1.8,4.5Hz), 8.70(2H,dd,J=1.5,4.5Hz).	447
XA516	(DMSO-d6):3.20-3.70(4H,m), 3.70(1H,m), 3.98(3H,s), 3.99(3H,s), 4.00(1H,m), 4.96(1H,d,J=10.2Hz), 7.01(1H,s), 7.03(2H,m), 8.26(2H,d,J=6.1Hz), 8.53(1H,s), 8.84(2H,d,J=6.1Hz), 10.25(1H,d,J=10.7Hz)	414
XA525	(DMSO-d6):3.30-3.50(2H,m), 3.48(3H,s), 3.55-3.78(2H,m), 3.78(3H,s), 3.96(2H,d,J=13.5Hz), 4.69(1H,t,J=10.4Hz), 7.06(1H,t,J=7.4Hz), 7.12(1H,s), 7.14(1H,d,J=7.4Hz), 7.31(1H,d,J=7.4Hz), 7.39(1H,t,J=7.4Hz), 7.59(2H,d,J=8.3Hz), 7.77(2H,d,J=8.3Hz), 8.43(2H,d,J=6.5Hz), 8.93(2H,d,J=6.5Hz), 9.89(1H,d,J=8.7Hz), 10.34(1H,s).	454
XA527	(DMSO-d6):3.40-4.10(9H,m), 3.81(3H,s), 4.69(1H,m), 7.05(1H,s), 7.05(2H,d,J=9.0Hz), 7.67(2H,d,J=9.0Hz), 7.75(4H,s), 8.27(2H,d,J=5.7Hz), 8.85(2H,d,J=5.7Hz), 9.75(1H,s), 10.04(1H,s).	454

XA536	(DMSO-d6):3.40-3.60(2H,m), 3.47(3H,s), 3.68(2H,m), 3.95(2H,m), 4.71(1H,t,J=9.9Hz), 7.16(1H,s), 7.33(2H,t,J=8.85Hz), 7.78(6H,m), 8.50(2H,d,J=6.3Hz), 8.97(2H,d,J=6.3Hz), 10.02(1H,s), 10.50(1H,s).	443
XA543	3.52(s, 3H), 3.57-4.10(m, 6H), 5.57(m, 1H), 7.02(s, 1H), 7.53-7.70(m, 2H), 8.06(d, J=7.2Hz, 2H), 8.21-8.34(m, 3H), 8.82(d, J=6.3Hz, 2H), 9.88-9.92(m, 1H), 10.58-10.61(m, 1H)(DMSO d6)	398
XA544	3.41-3.59(2H, m), 3.49(3H, s), 3.68-3.76(2H, m), 3.97-4.02(2H, m), 4.78-4.89(1H, m), 7.15(1H, s), 7.58-7.63(2H, m), 7.89-8.07(4H, m), 8.30(1H, s), 8.49(2H, d, J=6.3 Hz), 8.95(2H, d, J=6.3 Hz), 10.17(1H, d, J=8.4 Hz), 10.57-10.70(1H, m)(DMSO-d6)	398
XA619	(CDCl3): 2.98(1H, dd, J=12.6, 10.8Hz), 3.17-3.28(5H, m), 3.58(3H, s), 3.62(1H, m), 3.79(1H, m), 4.26(1H, dd, 10.5, 2.7Hz), 4.62(2H, m), 6.66(1H, s), 6.88(1H, t, J=7.5Hz), 7.16(1H, d, J=7.2Hz), 7.27(1H, m), 7.84(2H, d, J=6.0), 8.70(2H, dd, J=4.8, 1.2Hz).	390
XA626	3.33-3.41(4H, m), 3.42(3H, s), 3.47-3.87(4H, m), 6.84(1H, s), 7.44-7.49(5H, m), 7.99(2H, dd, J=1.5, 4.5 Hz), 8.69(2H, dd, J=1.4, 4.8 Hz)(DMSO-d6)	376
XA649	3.44(3H, s),3.37-4.04(9H, m),4.67(1H, d,J=9.6Hz),7.10(1H, s),7.45-7.55(3H, m),7.83(2H, d,J=6.0Hz),8.47(2H, d,J=6.6Hz),8.95(2H, d,J=6.6Hz),12.15(1H, brs)(DMSO-d6)	362
XA756	(CDCl3) :2.50-2.61(1H,m), 2.80-2.95(1H,m), 3.05-3.20(1H,m), 3.25-3.40(1H,m), 3.50-3.60(1H,m), 3.57(3H,s), 3.65-3.75(1H,m), 3.75-3.80(1H,m), 3.85(3H,s), 6.60-6.80(3H,m), 7.47(1H,dd,J=7.2,8.4Hz), 7.82(2H,dd,J=1.5,4.5Hz), 8.71(2H,dd,J=1.5,4.5Hz).	410
XA757/ XA758	(DMSO-d6) :2.54(3H,s), 3.40-3.79(3H,m), 3.46(3H,s), 3.80-4.10(6H,m), 4.83-5.10(1H,m), 6.90-7.05(1H,m), 7.08(1H,s), 7.13(1H,dd,J=2.7,11.4Hz), 8.00-8.25(1H,brd), 8.37(2H,d,J=6.3Hz), 8.91(2H,d,J=6.6Hz), 11.80-12.20(1H,brd).	410
XA831	2.55(s, 3H), 3.51(s, 3H), 3.67-3.82(m, 4H), 4.04-4.08(m, 2H), 5.64(m, 1H), 7.05(s, 1H), 7.59-7.72(m, 3H), 8.06-8.11(m, 2H), 8.35(d, J=6.6Hz, 2H), 8.41(d, J=7.8Hz, 1H), 8.49 (d, J=6.9Hz, 1H), 8.84(d, J=6.6Hz, 2H)(DMSO d6)	412

XA 1016	(DMSO-d6) :3.15-3.35(1H,m), 3.38-3.60(4H,m), 3.75-4.15(8H,m), 4.18-4.25(1H,m), 4.90-5.20(1H,m), 7.00-7.20(3H,m), 7.30-7.55(6H,m), 8.50-8.70(3H,m), 9.00(2H,d,J=6.3Hz).	486
XA 1276	(CDCl3) :1.80-2.42(3H, m), 3.08-3.39(4H, m), 3.40-3.62(1H, m), 3.65-4.23(6.8H,m), 4.63-4.90(0.6H, m), 5.40-5.62(0.7H, m), 5.80-6.00(0.1H, m), 6.52-6.78(3H, m), 6.90-7.2(1H, m), 7.68-7.90(2H,m), 8.64-8.80(2H,m)	438
XA 1649	1.48(3H, s), 1.57(3H, s), 3.50(3H, s), 3.51-3.66(2H, m), 3.72-3.76(1H, m), 3.90(3H, s), 3.99(1H, d, J=13.4 Hz), 5.15-5.23(1H, m), 7.08-7.12(2H, m), 7.18(1H, d, J=8.6 Hz), 7.46-7.49(1H, m), 8.04-8.11(1H, m), 8.37-8.45(2H, m), 8.89-8.97(2H, m), 9.49-9.60(1H, m), 9.95-10.11(1H, m)(DMSO)	406
XA 1973	3.01 (1H, dd, J = 10.8, 12.9 Hz), 3.10-3.30 (3H, m), 3.50-3.75 (5H, m), 4.04 (1H, dd, J = 2.7, 10.8 Hz), 6.67 (1H, s), 7.20-7.40 (4H, m), 7.50 (1H, s), 7.80 (2H, dd, J = 1.5, 4.8 Hz), 8.71 (2H, dd, J = 1.5, 5.1 Hz) (CDCl3)	382
XA 1974	2.80 (1H, dd, J = 10.3, 12.2 Hz), 3.15-3.30 (3H, m), 3.50-3.80 (5H, m), 4.44 (1H, dd, J = 2.6, 10.3 Hz), 6.67 (1H, s), 7.10-7.20 (1H, m), 7.25-7.40 (1H, m), 7.58 (1H, dd, J = 1.0, 8.1 Hz), 7.73 (1H, dd, J = 1.6, 7.8 Hz), 7.81 (2H, dd, J = 1.6, 4.5 Hz), 8.70 (2H, dd, J = 1.6, 4.5 Hz) (CDCl3)	426
XA 1975	2.95-3.10 (1H, m), 3.10-3.35 (3H, m), 3.56 (3H, s), 3.60-3.70 (2H, m), 3.80-4.05 (7H, m), 6.67 (1H, s), 6,87 (1H, d, J = 8.1 Hz), 6.90-7.10 (2H, m), 7.80 (2H, dd, J = 1.8, 6.3 Hz), 8.71 (2H, dd, J = 1.5, 4.8 Hz) (CDCl3)	407
XA 1976	3.40 (3H, m), 3.45 (3H, s), 3.53-3.96 (3H, m), 4.68 (1H, t, J = 13.5Hz), 7.10 (1H, s), 7.60 (2H, d, J=8.3Hz), 7.76 (2H, d, J=8.3Hz), 8.38 (1H, br s), 8.91 (1H, d, J=4.8Hz), 9.88 (1H, br s), 10.31 (1H, br s) (DMSO-d6)	382
XA 1977	3.40(3H, m), 3.46(3H, s), 3.62(1H, dd, J=12.0, 13.2Hz), 3.72(1H, m), 3.92(1H, t, J=15.5Hz), 4.68(1H, t, J=10.1Hz), 7.18(1H, s), 7.58(2H, d, J=8.6Hz), 7.83(2H, d, J=8.6Hz), 8.57(2H, d, J=6.6Hz), 9.01(2H, d, J=6.6Hz), 10.20(1H, d, J=7.8Hz), 10.76(1H, br s) (DMSO-d6)	382
XA 1978	2.98 (1H, t, J = 10.9 Hz), 3.22 (m, 3H), 3.56 (3H, s), 3.60 (2H, m), 4.03 (1H, d, J = 8.7 Hz), 6.68 (1H, s), 7.28 (1H, d, J = 8.2 Hz), 7.46 (1H, d, J = 8.2 Hz), 7.61 (1H, s), 7.79 (2H, d, J = 5.6 Hz), 8.71 (2H, d, J = 5.6 Hz) (CDCl3)	

XA 1979	3.31 (1H, dd, J = 13.8, 8.9 Hz), 3.46 (3H, s), 3.85 (1H, dd, J = 13.8, 3.6 Hz), 4.10 (1H, d, J = 17.7 Hz), 4.19 (1H, d, J = 17.7 Hz), 4.91 (1H, dd, J = 8.9, 3.6 Hz), 6.11 (1H, s), 6.74 (1H, s), 7.32 (2H, d, J = 8.4 Hz), 7.42 (2H, d, J = 8.4 Hz), 7.79 (2H, dd, J = 4.8, 1.5 Hz), 8.74 (2H, dd, J = 4.8, 1.5 Hz) (CDCl3)	396
XA 1980	1.97 (4H, m), 3.26 (4H, m), 3.38 (2H, m), 3.45 (3H, s), 3.60 (2H, m), 3.80 (1H, d, J = 13.8 Hz), 3.92 (1H, d, J = 14.1 Hz), 4.48 (1H, t, J = 10.4 Hz), 6.65 (2H, d, J = 8.7 Hz), 7.16 (1H, s), 7.54 (2H, d, J = 8.7 Hz), 8.57 (2H, d, J = 6.6 Hz), 9.00 (2H, d, J = 6.6 Hz), 9.83 (1H, d, J = 9.3 Hz), 10.32 (1H, br s) (DMSO-d6)	417
XA 1981	3.21 (4H, m), 3.40 (2H, m), 3.46 (3H, s), 3.65 (2H, m), 3.78 (4H, m), 3.91 (2H, t, J = 13.7 Hz), 4.55 (1H, t, J = 10.1 Hz), 7.14 (2H ,d, J = 8.7 Hz), 7.20 (1H, s), 7.64 (2H, d, J = 8.7 Hz), 8.60 (2H, d, J = 6.6 Hz), 9.02 (2H, d, J = 6.6 Hz), 9.93 (1H ,d, J = 9.0 Hz), 10.47 (1H, br s) (DMSO-d6)	433
XA 1982	2.80 (3H, d, J = 4.5 Hz), 3.15 (4H, m), 3.44 (4H, m), 3.45 (3H, s), 3.60 (2H, m), 3.82 (1H, d, J = 13.5 Hz), 3.90 (3H, m), 4.54 (1H, t, J = 10.5), 7.10 (2H, d, J = 8.7 Hz), 7.17 (1H, s), 7.64 (2H, d, J = 8.7 Hz), 8.54 (2H, d, J = 6.3 Hz), 8.99 (2H, d, J = 6.3 Hz), 9.94 (1H, d, J = 8.7 Hz), 10.47 (1H, br s), 11.26 (1H, br s) (DMSO-d6)	446
XA 1983	1.27(3H, t, J=6.6 Hz), 3.46-4.14(8H, m), 4.70(1H, m), 7.11(1H, s), 7.60(2H, d, J=8.4 Hz), 7.76(2H, d, J=8.4 Hz), 8.32(2H, d, J=6 Hz), 8.89(2H, d, J=6.0 Hz), 9.87(1H, m), 10.23(1H, m), (DMSO-d6)	396
XA 1984	1.27(6H, dd, J=6.9, 6.9 Hz), 3.37-4.36(6H, m), 4.66-4.79(2H, m), 7.03(1H, s), 7.62(2H, d, J=8.7 Hz), 7.78(2H, d, J=8.7 Hz), 8.33(2H, d, J=6 Hz), 8.90(2H, d, J=6.0 Hz), 9.93(1H, m), 10.25(1H, m), (DMSO-d6)	410
XA 1985	1.40(3H, d, J=6.3 Hz), 3.44-4.04(5H, m), 3.48(3H, s), 4.69(1H, m), 7.08(1H, s), 7.60(2H, d, J=8.4 Hz), 7.79(2H, d, J=8.4 Hz), 8.33(2H, d, J=6.3 Hz), 8.90(2H, d, J=6.3 Hz), 9.83(1H, m), 10.00(1H, m), (DMSO-d6)	396

XA 1986	1.57(6H, s), 3.50(3H, s), 3.51-3.93(4H, m), 4.98(1H, m), 7.11(1H, s), 7.60(2H, d, J=7.4 Hz), 7.94(2H, d, J=7.4 Hz), 8.41(2H, d, J=6.0 Hz), 8.93(2H, d, J=6.0 Hz), 9.88(1H, m), 10.05(1H, m), (DMSO-d6)	410
XA 1987	1.43(3H, d, J=6.6 Hz), 3.38-3.93(5H, m), 3.48(3H, s), 4.72(1H, m), 7.12(1H, s), 7.59(2H, d, J=8.4 Hz), 7.84(2H, d, J=8.4 Hz), 8.43(2H, d, J=6.6 Hz), 8.95(2H, d, J=6.6 Hz), 9.65(1H, m), 10.23(1H, m), (DMSO-d6)	396
XA 1988	2.34 (1H, m), 2.42 (1H, m), 2.80 (3H, d, J = 5.6 Hz), 2.81 (3H, d, J = 5.6 Hz), 3.28 (1H, q, J = 8.8 Hz), 3.43 (2H, m), 3.45 (3H, s), 3.57 (5H, m), 3.80 (1H, d, J = 11.4 Hz), 3.96 (2H, m), 4.50 (1H, t, J = 10.4 Hz), 6.69 (2H, d, J = 8.4 Hz), 7.14 (1H, s), 7.55 (2H, d, J = 8.4 Hz), 8.47 (2H, d, J = 5.6 Hz), 8.96 (2H, d, J = 5.6 Hz), 9.75 (1H, d, J = 8.0 Hz), 10.16 (1H, br s), 11.40 (1H, br s) (DMSO-d6)	460
XA 1989	1.65 (2H, br s), 1.91 (4H, br s), 3.46 (9H, s), 3.70 (2H, m), 3.92 (2H, t, J = 16.6 Hz), 4.66 (1H, br s), 7.16 (1H, s), 7.85 (4H, br s), 8.50 (2H, d, J = 6.4 Hz), 8.97 (2H, d, J = 6.4 Hz), 10.01 (1H, br s), 10.59 (1H, br s) (DMSO-d6)	431
XA 1990	2.32 (1H, m), 2.42 (1H, m), 2.79 (3H, d, J = 5.2 Hz), 2.81 (3H, d, J = 5.2 Hz), 3.27 (1H, m), 3.39 (2H, m), 3.45 (3H, s), 3.59 (5H, m), 3.79 (1H, d, J = 13.3 Hz), 3.95 (2H, m), 4.50 (1H, t, J = 11.6 Hz), 6.69 (2H, d, J = 8.4 Hz), 7.16 (1H, s), 7.56 (2H, d, J = 8.4 Hz), 8.50 (2H, s), 8.98 (2H, d, J = 5.6 Hz), 9.78 (1H, br s), 10.19 (1H, br s), 11.44 (1H, br s) (DMSO-d6)	460
XA 1991	3.47 (3H, s), 3.61 (3H, m), 3.81 (3H, s), 4.02 (3H, m), 4.69 (1H, t, J = 10.6 Hz), 7.05 (2H, d, J = 8.8 Hz), 7.10 (1H, s), 7.67 (2H, d, J = 8.8 Hz), 7.77 (4H, s), 8.38 (2H, br s), 8.91 (2H, d, J = 5.2 Hz), 9.90 (1H, br s), 10.28 (1H, br s) (DMSO-d6)	454
XA 1992	1.26(3H, t, J=6.9 Hz), 1.41(3H, d, J=6.3 Hz), 3.43-4.06(7H, m), 4.74(1H, m), 7.09(1H, s), 7.58(2H, d, J=8.4 Hz), 7.84(2H, d, J=8.4 Hz), 8.32(2H, d, J=6.6 Hz), 8.90(2H, d, J=6.6 Hz), 9.90(1H, m), 10.03(1H, m), (DMSO-d6)	410
XA 1993	1.41(3H, t, J=6.3 Hz), 1.55(6H, dd, J=6.6, 6.6 Hz), 3.49-3.73(5H, m), 4.64(1H, m), 4.78(1H, m), 6.99(1H, s), 7.58(2H, d, J=8.7 Hz), 7.81(2H, d, J=8.7 Hz), 8.28(2H, d, J=6.3 Hz), 8.87(2H, d, J=6.3 Hz), 9.91(2H, m)(DMSO-d6)	424

XA 1994	1.27(3H, t, J=6.9 Hz), 1.55(3H, s), 1.60(3H, s), 3.42-4.14(6H, m), 5.04(1H, m), 7.13(1H, s), 7.60(2H, d, J=8.4 Hz), 7.91(2H, d, J=8.4 Hz), 8.32(2H, d, J=6.3 Hz), 8.89(2H, d, J=6.3 Hz), 9.80-9.84(2H, m)(DMSO-d6)	424
XA 1995	1.52(3H, d, J=6.6 Hz), 1.58(6H, s), 1.59(3H, d, J=6.6 Hz), 3.40-3.68(4H, m), 4.75(1H, m), 5.09(1H, m), 7.03(1H, s), 7.60(2H, d, J=8.4 Hz), 7.93(2H, d, J=8.4 Hz), 8.33(2H, d, J=6.0 Hz), 8.89(2H, d, J=6.0 Hz), 9.89(2H, m)(DMSO-d6)	438
XA 1996	1.29 (3H, t, J =6.8 Hz), 3.47 (2H, br s), 3.66 (3H, m), 3.81 (3H, s), 3.83 (1H, m), 4.04 (2H, m), 4.71 (1H, d, J = 10.6 Hz), 7.05 (2H, d, J = 8.8 Hz), 7.12 (1H, s), 7.67 (2H, d, J = 8.8 Hz), 7.75 (2H, d, J = 8.4 Hz), 7.79 (2H, d, J = 8.4 Hz), 8.36 (2H, d, J = 6.4 Hz), 8.91 (2H, d, J = 6.4 Hz), 9.92 (1H, d, J = 8.8 Hz), 10.29 (1H, br s) (DMSO-d6)	468
XA 1997	1.56 (3H, d, J = 6.4 Hz), 1.58 (3H, d, J = 6.4 Hz), 3.47 (2H, br s), 3.60 (1H, m), 3.77 (2H, m), 3.81 (3H, s), 4.72 (3H, m), 7.05 (2H, d, J = 8.8 Hz), 7.06 (1H, s), 7.68 (2H, d, J = 8.8 Hz), 7.76 (2H, d, J = 8.4 Hz), 7.80 (2H, d, J = 8.4 Hz), 8.42 (2H, d, J = 6.4 Hz), 8.94 (2H, d, J = 6.4 Hz), 10.02 (1H, d, J = 9.6 Hz), 10.39 (1H, br s) (DMSO-d6)	482
XA 1998	1.24 (1H, m), 1.39 (4H, m), 1.72 (1H, m), 1.79 (4H, m), 2.55 (1H, m), 3.45 (3H, s), 4.00-3.45 (6H, m), 4.61 (1H, t, J = 11.2 Hz), 7.09 (1H, s), 7.35 (2H, d, J = 8.4 Hz), 7.62 (2H, d, J = 8.4 Hz), 8.37 (2H, d, J = 4.0 Hz), 8.90 (2H, d, J = 4.0 Hz), 9.75 (1H, d, J = 9.6 Hz), 10.17 (1H, br s), (DMSO-d6)	430
XA 1999	1.04 (1H, m), 1.17 (2H, m), 1.43 (2H, m), 1.60 (1H, m), 1.79 (4H, m), 2.96 (3H, br s), 3.45 (3H, s), 4.18-3.44 (6H, m), 4.62 (1H, br s), 7.13 (1H, s), 7.75 (4H, br s), 8.46 (1H, br s), 8.95 (1H, br s), 9.87 (1H, br s), 10.40 (1H, br s) (DMSO-d6)	459
XA 2000	1.40(3H, d, J=6.6 Hz), 3.44-4.04(5H, m), 3.48(3H, s), 4.72(1H, m), 7.05(1H, s), 7.61(2H, d, J=8.4 Hz), 7.78(2H, d, J=8.4 Hz), 8.29(2H, d, J=6.0 Hz), 8.90(2H, d, J=6.0 Hz), 9.78-10.00(2H, m), (DMSO-d6)	396

XA 2001	1.26(3H, t, J=6.9 Hz), 1.41(3H, d, J=6.0 Hz), 3.43-4.06(7H, m), 4.74(1H, m), 7.08(1H, s), 7.58(2H, d, J=8.4 Hz), 7.81(2H, d, J=8.4 Hz), 8.29(2H, d, J=6.3 Hz), 8.88(2H, d, J=6.3 Hz), 9.84-10.00(2H, m), (DMSO-d6)	410
XA 2002	1.41(3H, t, J=6.0 Hz), 1.56(6H, dd, J=6.6, 6.6 Hz), 3.49-3.73(5H, m), 4.62(1H, m), 4.78(1H, m), 7.00(1H, s), 7.59(2H, d, J=8.4 Hz), 7.81(2H, d, J=8.4 Hz), 8.30(2H, d, J=6.3 Hz), 8.88(2H, d, J=6.3 Hz), 9.91(2H, m)(DMSO-d6)	424
XA 2003	3.03(4H, td, J=4.6Hz), 3.26(4H, t, J=4.5Hz), 3.48(3H, s), 6.65(1H, s), 7.10(2H, m), 7.20-7.45(5H, m), 7.65(2H, d, J=8.5Hz), 7.79(2H, d, J=6.3Hz), 8.71(2H, d, J=1.5, 4.8Hz)(CDCl3),	425
XA 2004	2.93 (1H, m), 3.20 (2H, m), 3.30 (3H, s), 3.36 (1H, d, J = 12.8 Hz), 3.46 (1H, t, J = 12.0 Hz), 3.73 (4H, m), 7.03 (1H, s), 7.33 (2H, m), 7.42 (3H, m), 8.16 (2H, d, J = 6.4 Hz), 8.86 (2H, d, J = 6.4 Hz), 9.61 (1H, d, J = 10.0 Hz), 9.95 (1H, d, J = 8.4 Hz) (DMSO-d6)	362
XA 2005	2.93 (1H, dd, J = 14.8, 8.4 Hz), 3.07 (1H, m), 3.19 (1H, m), 3.33 (3H, s), 3.41 (3H, s), 3.69 (1H, m), 3.80 (2H, d, J = 14.0 Hz), 6.96 (1H, br s), 7.39 (2H, d, J = 8.0 Hz), 7.49 (2H, d, J = 8.0 Hz), 8.00 (2H, br s), 8.77 (2H, br s), 9.24 (1H, s), 9.54 (1H, s) (DMSO-d6)	396
XA 2006	3.39 (2H, m), 3.46 (3H, s), 3.56 (2H, m), 3.85 (1H, d, J = 13.2 Hz), 3.93 (1H, d, J = 13.6 Hz), 4.55 (1H, t, J = 10.4 Hz), 6.94 (1H, br s), 7.13 (1H, s), 7.14 (4H, m), 7.30 (2H, m), 7.59 (2H, d, J = 8.0 Hz), 8.45 (2H, s), 8.95 (2H, s), 9.73 (1H, br s), 10.10 (1H, br s) (DMSO-d6)	508
XA 2007	1.39 (1H, m), 1.80 (8H, m), 2.18 (2H, d, J = 11.2 Hz), 2.76 (2H, t, J = 11.4 Hz), 3.90 (2H, m), 3.33 (1H, m), 3.40 (3H, m), 3.45 (3H, s), 3.58 (2H, m), 3.82 (1H, d, J = 13.3 Hz), 3.93 (3H, m), 4.53 (1H, t, J = 10.4 Hz), 7.09 (2H, d, J = 8.8 Hz), 7.11 (1H, s), 7.56 (2H, d, J = 8.8 Hz), 8.40 (2H, d, J = 6.0 Hz), 8.92 (2H, d, J = 6.0 Hz), 9.75 (1H, d, J = 8.8 Hz), 10.14 (1H, br s), 10.39 (1H, br s) (DMSO-d6)	514
XA 2008	2.82-2.90(1H, m), 3.01-3.05(4H, m), 3.22(3H, s), 3.44(3H, s), 3.58-3.66(2H, m), 4.08(1H, dd, J=1.2, 10.2Hz), 6.81(1H, s), 7.77(2H, d, J=7.2Hz), 7.92-7.98(4H, m), 8.69(2H, d, J=4.2Hz)(DMSO-d6)	426

XA 2009	1.21(3H, d, J=6.6 Hz), 3.17-3.45(4H, m), 3.52(3H, s), 4.02(1H, m), 4.69(1H, m), 7.20(1H, s), 7.54(2H, d, J=8.4 Hz), 7.70(2H, d, J=8.4 Hz), 8.26(2H, d, J=6.3 Hz), 8.88(2H, d, J=6.3 Hz), 9.90(1H, m), 10.16(1H, m), (DMSO-d6)	396
XA 2010	1.21(3H, d, J=6.0 Hz), 3.17-3.45(4H, m), 3.53(3H, s), 4.02(1H, m), 4.70(1H, m), 7.24(1H, s), 7.54(2H, d, J=8.7 Hz), 7.73(2H, d, J=8.7 Hz), 8.33(2H, d, J=5.7 Hz), 8.93(2H, d, J=5.7 Hz), 10.04(1H, m), 1037(1H, m), (DMSO-d6)	396
XA 2011	3.02 (1H, t, J = 11.9 Hz), 3.17 (6H, m), 3.55 (3H, s), 3.63 (2H, m), 3.86 (4H, m), 3.96 (1H, d, J = 10.2 Hz), 6.66 (1H, s), 6.92 (2H, d, J = 8.4 Hz), 7.35 (2H, d, J = 8.4 Hz), 7.80 (2H, d, J = 5.1 Hz), 8.70 (2H, d, J = 5.1 Hz) (CDCl3)	433
XA 2012	2.31 (3.6H, s), 3.16 (4H, t, J = 4.8 Hz), 3.44 (3H, s), 3.45 (4H, m), 3.75 (4H, t, J = 4.8 Hz), 3.86 (1H, d, J = 14.0 Hz), 3.92 (1H, d, J = 12.4 Hz), 4.56 (1H, d, J = 10.4 Hz), 6.95 (1H, s), 7.06 (2H, d, J = 8.8 Hz), 7.43 (2H, d, J = 8.8 Hz), 8.06 (2H, d, J = 6.0 Hz), 8.75 (2H, d, J = 6.0 Hz), 9.03 (1H, s), 9.33 (1H,d, J = 10.0 Hz) (DMSO-d6)	433
XA 2013	1.82 (4H, m), 1.97 (2H, m), 2.12 (2H, m), 2.77 (2H, t, J = 11.6 Hz), 3.01 (2H, m), 3.27 (1H, m), 3.40 (2H, m), 3.45 (3H, s), 3.49 (2H, m), 3.57 (1H, m), 3.63 (1H, m), 3.84 (1H, d, J = 13.6 Hz), 3.92 (3H, d, J = 12.8 Hz), 4.53 (1H, t, J = 11.2 Hz), 7.12 (2H, d, J = 8.4 Hz), 7.14 (1H, s), 7.58 (2H, d, J = 8.9 Hz), 8.49 (2H, d, J = 5.2 Hz), 8.97 (2H, d, J = 5.2 Hz), 9.82 (1H, br s), 10.24 (1H, br s), 11.12 (1H, br s) (DMSO-d6)	500
XA 2014	1.75(2H, m), 2.14(2H, m), 2.72(6H, d, J=4.5 Hz), 2.74-2.80(3H, m), 3.30-3.95(8H, m), 3.45(3H, s), 4.54(1H, m), 7.10(2H, d, J=9.0 Hz), 7.15(1H, s), 7.60(2H, d, J=9.0 Hz), 8.51(2H, d, J=6.6 Hz), 8.98(2H, d, J=6.6 Hz), 9.86(1H, m), 10.32(1H, m), 10.93(1H, m), (DMSO-d6)	474
XA 2015	1.68(2H, m), 2.09(2H, m), 3.16-3.90(10H, m), 3.45(3H, s), 4.60(1H, m), 7.13(1H, s), 7.45-7.71(4H, m), 8.45(2H, d, J=6.0 Hz), 8.94(2H, d, J=6.0 Hz), 9.83(1H, m), 10.22(1H, m) (DMSO-d6)	447

XA 2016	1.91-2.03(2H, m), 3.09(1H, m), 3.28-3.57(7H, m), 3.40(3H, s), 4.41(2H, m), 6.58(2H, d, J= 8.7 Hz), 7.13(1H, s), 7.46(2H, d, J= 8.7 Hz), 8.44(2H, d, J=6.3 Hz), 8.94(2H, d, J=6.3 Hz), 9.61(1H, m), 9.89(1H, m) (DMSO-d6)	433
XA 2017	2.97 (6H, s), 3.45 (3H, s), 4.20-3.30 (6H, m), 4.53 (1H, t, J = 9.8 Hz), 6.69 (2H, br s), 7.14 (1H, s), 7.57 (2H, br s), 8.48 (2H, br s), 8.96 (2H, br s), 9.72 (1H, br s), 10.09 (1H, br s) (DMSO-d6)	391
XA 2018	3.18-3.22(1H, m), 3.44-3.80(15H, m), 4.51-4.55(1H, m), 5.11(2H, s), 7.04-7.07(3H, m), 7.32-7.39(5H, m), 7.52-7.55(2H, m), 8.33-8.35(2H, m), 8.82-8.87(2H, m), 9.65-9.75(2H, br)(DMSO-d6)	566
XA 2019	1.32(6H, d, J=6.8Hz), 3.04-3.88(18H, m), 4.52-4.55(1H, m), 7.09-7.12(3H, m), 7.62(2H, d, J=7.2Hz), 8.45(2H, d, J=4.2Hz), 8.94(2H, d, J=4.2Hz), 9.83-10.34(3H, br), 11.00-11.04(1H, br)(DMSO-d6)	474
XA 2020	1.32(6H, d, J=6.8Hz), 3.04-3.88(18H, m), 4.52-4.55(1H, m), 7.09-7.12(3H, m), 7.62(2H, d, J=7.2Hz), 8.45(2H, d, J=4.2Hz), 8.94(2H, d, J=4.2Hz), 9.83-10.34(3H, br), 11.00-11.04(1H, br)(DMSO-d6)	476
XA 2021	2.09(3H, s), 3.19-4.00(20H, m), 4.43-4.54(3H, m), 7.06-7.19(3H, m), 7.62(2H, d, J=7.2Hz), 8.44(2H, d, J=4.2Hz), 8.94(2H, d, J=4.2Hz), 9.82-9.85(1H, br), 10.26-10.30(1H, br), 11.30-11.40(1H, br)(DMSO-d6)	518
XA 2022	3.17-3.21(4H, m), 3.38-4.16(14H, m), 4.51-4.54(1H, m), 7.08-7.18(3H, m), 7.60(2H, d, J=7.2Hz), 8.43(2H, d, J=4.2Hz), 8.93(2H, d, J=4.2Hz), 9.26-9.34(2H, br), 9.81-84(1H, br), 10.25-10.30(1H, br)(DMSO-d6)	432
XA 2023	1.82(3H, m), 3.29(3H, m), 3.40-3.96(9H, m), 3.48(3H, s), 4.55(1H, m), 7.10(1H, s), 7.13(2H, d, J=8.4 Hz), 7.56(2H, d, J=8.4 Hz), 8.39(2H, d, J=6.0 Hz), 8.91(2H, d, J=6.0 Hz), 9.67(1H, m), 9.97(1H, m) (DMSO-d6)	445

XA 2024	1.89-2.03(2H, m), 2.95-3.07(5H, m), 3.29-3.83(5H, m), 3.40(3H, s), 4.40(1H, m), 4.94(1H, m), 6.49(2H, d, J= 8.4 Hz), 7.13(1H, s), 7.25(2H, d, J= 8.4 Hz), 7.95(2H, d, J=6.0 Hz), 8.69(2H, d, J=6.0 Hz) (DMSO-d6)	433
XA 2025	1.16(6H, d, J= 6.3 Hz), 2.28-2.36(2H, m), 2.97-3.21(6H, m), 3.54(3H, s), 3.55-3.62(4H, m), 3.95(1H, m), 6.66(1H, s), 6.93(2H, d, J= 8.7 Hz), 7.32(2H, d, J= 8.7 Hz), 7.80(2H, d, J=6.3 Hz), 8.70(2H, d, J=6.3 Hz) (CDCl3)	460
XA 2026	1.26(6H, d, J= 6.3 Hz), 2.42(2H, dd, J= 11.1, 11.1 Hz), 3.02(1H, dd, J= 12.3, 10.8 Hz), 3.17-3.22(3H, m), 3.45-3.63(4H, m), 3.55(3H, s), 3.81(1H, m), 3.95(1H, dd, J= 13.2, 2.1 Hz), 6.66(1H, s), 6.92(2H, d, J= 8.4 Hz), 7.34(2H, d, J= 8.4 Hz), 7.80(2H, d, J=6.0 Hz), 8.70(2H, d, J=6.0 Hz) (CDCl3)	461
XA 2027	2.91-3.09(5H, m), 3.26(3H, s), 3.46(3H, s), 3.69-3.73(2H, m), 4.07-4.11(1H, m), 6.81(1H, s), 7.64(2H, d, J=7.2Hz), 7.77(2H, d, J=7.2Hz), 7.94-8.02(6H, m), 8.68(1H, d, J=4.2Hz)(DMSO-d6)	502
XA 2028	3.28-3.32(4H, m), 3.46(3H, s), 3.86-3.91(2H, m), 4.59-4.61(1H, m), 6.90(1H, s), 7.77-8.06(10H, m), 8.70(2H, d, J=4.2Hz), 9.36-9.44(1H, br)(DMSO-d6)	449
XA 2029	3.08 (1H, dd, J = 12.4, 10.4 Hz), 3.25 (3H, m), 3.58 (3H, s), 3.68 (2H, m), 4.09 (1H, dd, J = 10.4, 2.4 Hz), 6.68 (1H, s), 7.29 (2H, d, J = 8.4 Hz), 7.54 (2H, d, J = 8.4 Hz), 7.56 (2H, d, J = 8.4 Hz), 7.59 (2H, d, J = 8.4 Hz), 7.81 (2H, dd, J = 4.4, 1.6 Hz), 8.71 (2H, dd, J = 4.4, 1.6 Hz) (CDCl3)	508
XA 2030	3.08 (1H, dd, J = 12.4, 10.4 Hz), 3.27 (3H, m), 3.58 (3H, s), 3.70 (2H, m), 4.11 (1H, dd, J = 10.4, 2.4 Hz), 6.68 (1H, s), 7.57 (2H, d, J = 8.0 Hz), 7.63 (2H, d, J = 8.0 Hz), 7.70 (4H, s), 7.81 (2H, dd, J = 4.8, 1.2 Hz), 8.71 (2H, dd, J = 4.8, 1.2 Hz) (CDCl3)	492
XA 2031	1.45 (3H, t, J = 12.4 Hz), 3.08 (1H, dd, J = 12.4, 10.8 Hz), 3.24 (3H, m), 3.57 (3H, s), 3.67 (2H, m), 4.07 (1H, m), 4.09 (2H, q, J = 7.0 Hz), 6.67 (1H, s), 6.97 (2H, d, J = 8.4 Hz), 7.51 (2H, d, J = 8.4 Hz), 7.51 (2H, d, J = 8.4 Hz), 7.54 (2H, d, J = 8.4 Hz), 7.57 (2H, d, J = 8.4 Hz), 7.81 (2H, dd, J = 4.8, 1.2 Hz), 8.71 (2H, dd, J = 4.8, 1.2 Hz) (CDCl3)	468

XA 2032	1.94 (4H, m), 2.02 (1H, m), 2.21 (1H, m), 2.62 (4H, m), 2.91 (1H, m), 3.03 (1H, dd, J = 12.4, 10.4 Hz), 3.20 (4H, m), 3.33 (1H, m), 3.48 (2H, m), 3.54 (3H, s), 3.62 (2H, m), 3.91 (1H, dd, J = 10.4, 2.4 Hz), 6.55 (2H, d, J = 8.4 Hz), 6.66 (1H, s), 7.29 (2H, d, J = 8.4 Hz), 7.81 (2H, dd, J = 4.4, 0.8 Hz), 8.70 (2H, dd, J = 4.4, 0.8 Hz) (CDCl3)	468
XA 2033	2.29(3H, s), 3.06(4H, t, J=4.8Hz), 3.38(4H, t, J=4.8Hz), 3.51(3H, s), 5.70(1H, s), 6.67(1H, s), 7.24-7.29(5H, m), 7.83(2H, dd, J=1.6, 4.3Hz), 8.72(2H, dd, J=1.3, 4.5Hz)(CDCl3)	427
XA 2034	3.09 (1H, dd, J = 12.0, 10.8 Hz), 3.23 (3H, m), 3.57 (3H, s), 3.66 (2H, m), 3.82 (3H, s), 3.86 (3H, s), 4.06 (1H, dd, J = 10.8, 2.4 Hz), 6.58 (2H, m), 6.67 (1H, s), 7.24 (2H, m), 7.47 (2H, d, J = 8.0 Hz), 7.53 (2H, d, J = 8.0 Hz), 7.82 (2H, dd, J = 4.8, 1.2 Hz), 8.71 (2H, dd, J = 4.8, 1.2 Hz) (CDCl3)	484
XA 2035	3.08 (3H, dd, J = 12.4, 10.8 Hz), 3.25 (3H, m), 3.57 (3H, s), 3.67 (2H, m), 3.93 (3H, s), 3.96 (3H, s), 4.08 (1H, dd, J = 10.0, 2.0 Hz), 6.68 (1H, s), 6.95 (1H, d, J = 8.4 Hz), 7.11 (1H, d, J = 2.4 Hz), 7.16 (1H, dd, J = 8.4, 2.4 Hz), 7.51 (2H, d, J = 8.0 Hz), 7.58 (2H, d, J = 8.0 Hz), 7.81 (2H, dd, J = 4.8, 1.2 Hz), 8.71 (2H, dd, J = 4.8, 1.2 Hz) (CDCl3)	484
XA 2036	3.08 (1H, dd, J = 12.4, 10.8 Hz), 3.26 (3H, m), 3.57 (3H, s), 3.67 (2H, m), 4.09 (1H, dd, J = 10.0, 2.0 Hz), 6.68 (1H, s), 7.42 (2H, d, J = 8.4 Hz), 7.53 (4H, d, J = 8.4 Hz), 7.58 (2H, d, J = 8.4 Hz), 7.80 (2H, dd, J = 4.8, 1.6 Hz), 8.71 (2H, dd, J = 4.8, 1.6 Hz) (CDCl3)	458
XA 2037	3.09 (1H, dd, J = 12.4, 10.8 Hz), 3.25 (3H, m), 3.58 (3H, s), 3.69 (2H, m), 4.11 (1H, dd, J = 10.4, 2.4 Hz), 6.68 (1H, s), 7.28 (2H, m), 7.44 (2H, d, J = 8.0 Hz), 7.51 (3H, m), 8.81 (2H, dd, J = 4.0, 1.2 Hz), 8.72 (2H, dd, J = 4.0, 1.2 Hz) (CDCl3)	492
XA 2038	3.07 (1H, dd, J = 12.3, 11.0 Hz), 3.26 (3H, m), 3.57 (3H, s), 3.67 (2H, m), 4.10 (1H, dd, J = 10.2, 2.1 Hz), 6.68 (1H, s), 7.42 (1H, dd, J = 8.1, 2.2 Hz), 7.55 (5H, m), 7.68 (1H, d, J = 2.2 Hz), 7.80 (2H, dd, J = 4.8, 1.3 Hz), 8.71 (2H, dd, J = 4.8, 1.3 Hz) (CDCl3)	492

XA 2039	3.06 (1H, dd, J = 12.0, 10.8 Hz), 3.24 (3H, m), 3.58 (3H, s), 3.67 (2H, m), 4.13 (1H, dd, J = 10.4, 2.4 Hz), 6.68 (1H, s), 7.61 (2H, d, J = 8.4 Hz), 7.80 (2H, d, J = 4.4 Hz), 8.15 (2H, d, J = 8.4 Hz), 8.71 (2H, d, J = 4.4 Hz), 8.77 (1H, s) (CDCl3)	416
XA 2040	3.04-3.26(4H, m), 3.57(3H, s), 3.66-3.71(2H, m), 4.07(1H, m), 5.12(2H, s), 6.68(1H, s), 7.06(2H, d, J= 8.7 Hz), 7.40-7.59(11H, m), 7.81(2H, d, J=6.0 Hz), 8.71(2H, d, J=6.0 Hz) (CDCl3)	530
XA 2041	0.38(2H, m), 0.67(2H, m), 1.32(1H, m), 3.09(1H, dd, J=12.6, 11.1 Hz), 3.22-3.28(3H, m), 3.58(3H, s), 3.67-3.71(2H, m), 3.86(2H, d, J= 6.9 Hz), 4.08(1H, m), 6.68(1H, s), 7.06(2H, d, J= 9.0 Hz), 7.49-7.60(6H, m), 7.82(2H, d, J=6.0 Hz), 8.72(2H, d, J=6.0 Hz) (CDCl3)	494
XA 2042	1.37(6H, d, J= 6.0 Hz), 3.08(1H, dd, J=12.3, 11.1 Hz), 3.20-3.28(3H, m), 3.57(3H, s), 3.65-3.70(2H, m), 4.06(1H, m), 4.59(1H, m), 6.67(1H, s), 7.06(2H, d, J= 9.0 Hz), 7.48-7.59(6H, m), 7.81(2H, d, J=6.0 Hz), 8.71(2H, d, J=6.0 Hz) (CDCl3)	482
XA 2043	0.99(3H, t, J= 7.5 Hz), 1.40-1.85(4H, m), 3.05-3.30(4H, m), 3.57(3H, s), 3.65-3.70(2H, m), 4.00-4.10(3H, m), 6.67(1H, s), 6.97(2H, d, J= 8.7 Hz), 7.50-7.56(6H, m), 7.81(2H, d, J=6.0 Hz), 8.71(2H, d, J=6.0 Hz) (CDCl3)	496
XA 2044	1.66(1H, br.s), 2.52(3H, s), 3.05(1H, dd, J=10.5, 12.6Hz), 3.20-3.26(3H, m), 3.57(3H, s), 3.62-3.72(2H, m), 4.07(1H, dd, J=2.1, 10.5Hz), 6.67(1H, s), 7.33(2H, d, J=8.4Hz), 7.50-7.61(6H, m), 7.81(2H, dd, J=1.6, 4.3Hz), 8.70(2H, dd, J=1.3, 4.5Hz)(CDCl3)	469
XA 2045	1.72(1H, br.s), 2.40(3H, s), 2.98-3.26(5H, m), 3.57(3H, s), 3.57-3.67(1H, m), 4.07(1H, dd, J=2.1, 10.5Hz), 6.67(1H, s), 7.24(2H, d, J=8.1Hz), 7.49-7.52(4H, m), 7.60(2H, d, J=8.1Hz), 7.81(2H, dd, J=1.6, 4.3Hz), 8.70(2H, dd, J=1.3, 4.5Hz)(CDCl3)	437
XA 2046	1.36(9H, s), 1.72(1H, br.s), 3.06(1H, dd, J=10.5, 12.4Hz), 3.20-3.28(3H, m), 3.57(3H, s), 3.57-3.67(2H, m), 4.07(1H, dd, J=2.1, 10.5Hz), 6.67(1H, s), 7.24(2H, d, J=8.1Hz), 7.43-7.56(6H, m), 7.81(2H, dd, J=1.6, 4.3Hz), 8.71(2H, dd, J=1.3, 4.5Hz)(CDCl3)	479

XA 2047	1.29(6H, d, J=6.9Hz), 1.73(1H, br.s), 2.96(1H, m), 3.06(1H, dd, J=10.5, 12.4Hz), 3.21-3.29(3H, m), 3.57(3H, s), 3.62-3.71(2H, m), 4.07(1H, dd, J=2.1, 10.5Hz), 6.67(1H, s), 7.31(2H, d, J=8.1Hz), 7.45-7.54(4H, m), 7.63(2H, d, J=8.1Hz), 7.81(2H, dd, J=1.6, 4.3Hz), 8.71(2H, dd, J=1.3, 4.5Hz), (CDCl3)	465
XA 2048	1.68(2H, br.s), 2.98(1H, dd, J=10.5, 12.6Hz), 3.20-3.27(2H, m), 3.56(3H, s), 3.64-3.74(1H, m), 4.04(1H, dd, J=3.3, 11.1Hz), 4.80(3H, s), 6.66(1H, s), 6.72(2H, d, J=8.5Hz), 7.49-7.52(4H, m), 7.63(2H, d, J=8.1Hz), 7.81(2H, dd, J=1.6, 4.3Hz), 8.70(2H, dd, J=1.3, 4.5Hz)(DMSO-d6)	438
XA 2049	2.67 (3H, s), 3.06 (1H, dd, J = 12.4, 10.8 Hz), 3.25 (3H, m), 3.57 (3H, s), 3.62 (2H, m), 4.12 (1H, dd, J = 10.0, 2.0 Hz), 6.68 (1H, s), 7.59 (2H, d, J = 8.0 Hz), 7.80 (1H, dd, J = 4.8, 1.2 Hz), 8.09 (1H, d, J = 8.0 Hz), 8.71 (1H, dd, J = 4.8, 1.2 Hz) (CDCl3)	430
XA 2050	3.05(1H, m), 3.30-3.48(3H, m), 3.64(3H, s), 4.08-4.22(2H, m), 4.68(1H, m), 5.15(1H, d, J= 12.3 Hz), 5.21(1H, d, J= 12.6 Hz), 6.63(1H, s), 7.21(2H, d, J= 8.4 Hz), 7.28-7.39(7H, m), 7.59(2H, d, J=6.3 Hz), 8.68(2H, d, J=6.3 Hz) (CDCl3)	560
XA 2051	2.88-3.34(6H, m), 3.67(3H, s), 4.56(1H, dd, J= 9.9, 3.3 Hz), 6.62(1H, s), 7.19(2H, d, J= 10.8 Hz), 7.36(2H, d, J= 10.8 Hz), 7.58(2H, dd, J=4.5, 1.5 Hz), 8.67(2H, dd, J=4.5, 1.5 Hz) (CDCl3)	426
XA 2052	3.04(1H, m), 3.29-3.48(3H, m), 3.64(3H, s), 4.10-4.15(2H, m), 4.68(1H, m), 5.15(1H, d, J= 12.3 Hz), 5.21(1H, d, J= 12.6 Hz), 6.63(1H, s), 7.21(2H, d, J= 8.1 Hz), 7.32-7.39(7H, m), 7.59(2H, d, J=6.0 Hz), 8.68(2H, d, J=6.0 Hz) (CDCl3)	560
XA 2053	3.01(1H, m), 3.29-3.41(3H, m), 3.66(3H, s), 4.05-4.13(2H, m), 4.67(1H, m), 6.64(1H, s), 7.23(2H, d, J= 8.4 Hz), 7.41(2H, d, J= 8.4 Hz), 7.60(2H, dd, J=4.5, 1.5 Hz), 8.69(2H, dd, J=4.5, 1.5 Hz) (CDCl3)	527
XA 2054	2.28(3H, s), 3.07(4H, m), 3.59(4H, m), 3.73(3H, s), 5.78(1H, s), 6.70(1H, s), 6.98(1H, m), 7.40(1H, m), 7.60-7.66(2H, m), 7.81(2H, dd, J=1.6, 4.3Hz), 8.72(2H, dd, J=1.3, 4.5Hz)(CDCl3)	445

XA 2055	2.31(3H, s), 3.19(4H, m), 3.46(4H, m), 3.54(3H, s), 5.79(1H, s), 6.69(1H, s), 7.18-7.23(1H, m), 7.79(2H, d, J=5.4Hz), 7.79-7.87(2H, m), 8.54(1H, d, J=5.2Hz), 8.72(2H, d, J=4.5Hz)(CDCl3)	428
XB13	1.16-1,28(1H, m), 1.50-1.64(1H, m), 1.70-1.82(2H, m), 1.90-2.01(1H, m), 2.58(2H, d, J=7.3 Hz), 2.64-2.72(1H, m), 2.89-2.97(1H, m), 3.28(3H, s), 3.57-3.67(2H, m), 6.93(1H, s), 7.20-7.35(5H, m), 8.26(2H, d, J=5.7 Hz), 8.87(2H, d, J=5.9 Hz)(DMSO-d6)	361
XB16	1.75-2.16(4H, m), 2.96-3.08(3H, m, 3.55(3H, s), 3.69-3.79(2H, m), 6.66(1H, s), 7.26-7.40(5H, m), 7.81(2H, d, J = 6.0 Hz), 8.70(2H, d, J = 6.0 Hz) (CDCl3)	347
XB17	1.76-1.99(5H, m), 2.97-3.10(2H, m), 3.75(1H, d, J=12.4 Hz), 6.81(1H, s), 7.18-7.24(2H, m), 7.28-7.35(1H, m), 7.47(1H, t, J=7.1 Hz), 7.98(2H, d, J=5.8 Hz), 8.68(2H, d, J=5.8 Hz)(DMSO-d6)	365
XB19	1.86-2.14(4H, m), 2.94-3.03(3H, m), 3.55(3H, s), 3.68-3.75(2H, m), 6.66(1H, s), 7.05(2H, m), 7.23(2H, m), 7.80(2H, d, J = 6.3 Hz), 8.70(2H, d, J = 6.3 Hz)(CDCl3)	365
XB33	1.75-2.08(4H, m), 2.80(1H, m), 3.03(1H, m), 3.42(3H, s), 3.77(2H, m), 3.85(3H, s), 6.65(1H, s), 6.89-7.00(2H, m), 7.22-7.28(2H, m), 7.82(2H, d, J = 6.0 Hz), 8.70(2H, d, J = 6.0 Hz) (CDCl3)	377
XB35	1.73-1.83(4H, m), 2.90-3.02(3H, m), 3.42(3H, s), 3.67-3.81(2H, m), 3.74(3H, s), 6.80(1H, s), 6.91(2H, d, J=8.7 Hz), 7.27(2H, d, J=8.5 Hz), 7.97(2H, d, J=5.9 Hz), 8.69(2H, d, J=5.7 Hz)(DMSO-d6)	377
XB43	1.69-1.90(7H, m), 1.94-2.00(1H, m), 2.59-2.68(4H, m), 2.92-3.02(3H, m), 3.43(3H, s), 3.69-3.80(4H, m), 6.59(3H, s), 6.79(1H; s), 7.29-7.36(4H, m), 7.96(2H, d, J=5.9 Hz), 8.68(2H, d, J=5.1 Hz)(DMSO-d6)	430
XB46	(CDCl3): 1.95-2.09(3H, m), 2.39(1H, m), 3.15(1H, m), 3.45(1H, dd, J=12.9, 10.8Hz), 3.57(3H, s), 3.61-3.72(2H, m), 4.08(1H, m), 6.67(1H, s), 7.32(1H, m), 7.58-7.60(2H, m), 7.74(1H, d, J=7.8Hz), 7.80(2H, dd, J=4.5, 1.5Hz), 8.69(2H, dd, J=4.5, 1.5Hz).	388
XB47	(CDCl3): 1.90-2.06(3H, m), 2.36(1H, m), 3.14(1H, m), 3.42(1H, m), 3.57(3H, s), 3.61-3.71(2H, m), 4.06(1H, m), 6.68(1H, s), 7.09(1H, m), 7.28(1H, m), 7.68(1H, dd, J=8.8, 5.1Hz), 7.79(2H, d, J=4.7Hz), 8.69(2H, d, J=5.9Hz).	406

XB48	1.90-2.10(3H, m), 2.32-2.44(1H, m), 3.11-3.20(1H, m), 3.45(1H, dd, J=10.5, 12.6 Hz), 3.57(3H, s), 3.61-3.72(2H, m), 4.08(1H, d, J=11.1 Hz), 6.67(1H, s), 7.30-7.35(1H, m), 7.56-7.62(2H, m), 7.74(1H, d, J=13.8 Hz), 7.80(2H, dd, J=1.8, 4.5 Hz), 8.70(2H, dd, J=1.8, 4.8 Hz)(CDCl3)	388
XB49	1.91-2.09(3H, m), 2.37-2.42(1H, m), 3.12-3.19(1H, m), 3.45(1H, dd, J=10.8, 12.9 Hz), 3.57(3H, s), 3.60-3.72(2H, m), 4.08(1H, d, J=11.1 Hz), 6.67(1H, s), 7.30-7.35(1H, m), 7.54-7.62(2H, m), 7.75(1H, d, J=8.1 Hz), 7.80(2H, dd, J=1.5, 4.5 Hz), 8.70(2H, dd, J=1.8, 4.5 Hz)(CDCl3)	388
XB50	1.59-1.67(1H, m), 1.72-1.81(1H, m), 2.08(1H, dt, J=3.4, 12.7 Hz), 2.23-2.40(1H, m), 3.06-3.14(1H, m), 3.41-3.54(2H, m), 3.42(3H, s), 3.93(1H, d, J=14.0 Hz), 7.02(1H, s), 7.24-7.29(1H, m), 7.34-7.39(2H, m), 7.56-7.59(2H, m), 8.55(2H, d, J=6.6 Hz), 8.98(2H, d, J=6.5 Hz)(DMSO-d6)	363
XB80	2.21-2.36(4H, m), 3.19-3.31(2H, m), 3.46(3H, s), 3.88(2H, d, J=13.2 Hz), 6.86(1H, s), 7.38-7.42(1H, m), 7.46-7.51(2H, m), 7.58-7.64(2H, m), 8.01(2H, d, J=5.1 Hz), 8.70(2H, d, J=5.1 Hz)(DMSO-d6)	372
XB122	1.44(2H, m), 1.75-1.83(3H, m), 2.63(2H, d, J = 6.9 Hz), 2.90(2H, m), 3.51(3H, s), 3.64(2H, m), 6.65(1H, s), 7.17-7.34(5H, m), 7.80(2H, d, J = 6.3 Hz), 8.70(2H, d, J = 6.3 Hz) (CDCl3)	361
XB123	1.44-2.16(5H, m), 2.86-2.97(2H, m), 3.49(3H, s), 3.62(1H, m), 3.72(1H, m), 4.48(1H, d, J = 7.2 Hz), 6.64(1H, s), 7.07(2H, m), 7.32(2H, m), 7.79(2H, d, J = 6.3 Hz), 8.69(2H, d, J = 6.3 Hz) (CDCl3)	395
XB124	1.38-1.60(3H, m), 1.78(1H, m), 2.16(1H, m), 2.79-2.94(2H, m), 3.20(3H, s), 3.49(3H, s), 3.59(1H, m), 3.69(1H, m), 3.88(1H, d, J = 7.5 Hz, 1H), 6.64(1H, s), 7.08(2H, m), 7.25(2H, m), 7.79(2H, d, J = 6.0 Hz), 8.70(2H, d, J = 6.0 Hz) (CDCl3)	409
XB127	1.87-2.06(4H, m), 2.79(1H, m), 3.10(2H, m), 3.57(3H, s), 3.78(2H, m), 6.68(1H, s), 7.23-7.29(3H, m), 7.34(2H, m), 7.84(2H, d, J = 6.0 Hz), 8.72(2H, d, J = 6.0 Hz) (CDCl3)	347
XB130	1.81-2.03(4H, m), 2.78(1H, m), 3.09(2H, m), 3.57(3H, s), 3.79(2H, m), 6.69(1H, s), 7.03(2H, m), 7.23(2H, m), 7.84(2H, d, J = 5.4 Hz), 8.72(2H, br s) (CDCl3)	365
XB134	1.78-1.95(4H, m), 2.80-2.91(1H, m), 2.96-3.09(2H, m), 3.45(3H, s), 3.81(2H, d, J=13.1 Hz), 6.80(1H, s), 7.33(1H, dd, J=2.0, 8.3 Hz), 7.56-7.60(2H, m), 7.99(2H, dd, J=1.6, 4.5 Hz), 8.69(2H, dd, J=1.5, 4.5 Hz)(DMSO-d6)	415

XB145	1.82-2.02(4H, m), 3.09-3.27(3H, m), 3.57(3H, s), 3.79(2H, m), 3.86(3H, s), 6.67(1H, s), 6.89-6.99(2H, m), 7.21-7.26(2H, m), 7.84(2H, d, J = 6.0 Hz), 8.72(2H, d, J = 6.0 Hz) (CDCl3)	377
XB157	1.85-2.07(2H,m), 2.17-2.30(2H,m), 2.91-3.10(1H,m), 3.10-3.24(2H,m), 3.57(3H,s), 3.71-3.88(2H,m), 6.69(1H,s), 6.99-7.06(1H,m), 7.21(1H,dd,J=2.1,8.7Hz), 7.45(1H,s), 7.49-7.65(1H,m), 7.83(2H,dd,J=1.8,4.5Hz), 8.72(2H,dd,J=1.2,4.8Hz)(CDCl3)	405
XB158	2.22-2.32(4H, m), 3.22(2H, m), 3.37(1H, m), 3.58(3H, s), 3.82(2H, m, 6.71(1H, s), 7.10(1H, m), 7.29(1H, m), 7.67(1H, m), 7.83(2H, d, J = 6.3 Hz), 8.72(2H, d, J = 6.3 Hz) (CDCl3)	406
XB159	2.19-2.26(4H, m), 3.21(2H, m), 3.35(1H, m), 3.59(3H, s), 3.82(2H, m), 6.70(1H, s), 6.95(1H, dt, J = 9.0, 2.1 Hz), 7.13(1H, dd, J = 9.0, 2.1 Hz), 7.71(1H, m), 7.85(2H, d, J = 6.3 Hz), 8.72(2H, d, J = 6.3 Hz) (CDCl3)	405
XB160	2.13-2.34(2H,m), 2.34-2.43(2H,m), 3.10-3.38(3H,m), 3.57(3H,s), 3.68-3.83(2H,m), 6.69(1H,s), 7.29-7.40(2H,m), 7.46-7.59(1H,m), 7.64-7.78(1H,m), 7.80-7.78(2H,m), 8.72(2H,d,J=6.0Hz)(CDCl3)	388
XB161	2.19(2H, m), 2.38(2H, m), 3.18(2H, m), 3.39(1H, m), 3.58(3H, s), 3.80(2H, m), 6.70(1H, s), 7.39(1H, m), 7.50(1H, m), 7.83(2H, d, J = 6.0 Hz), 7.89(1H, d, J = 7.2 Hz), 8.01(1H, d, J = 7.8 Hz), 8.73(2H, d, J = 6.0 Hz) (CDCl3)	404
XB162	1.96(2H, m), 2.88(2H, m), 3.15(2H, m), 3.60(3H, s), 3.85(2H, m), 4.63(1H, m), 6.73(1H, s), 7.13-7.23(3H, m), 7.46(1H, d, J = 7.5 Hz), 7.84(2H, d, J = 6.3 Hz), 8.73(2H, d, J = 6.3 Hz)(CDCl3)	420
XB164	1.64(2H, m), 2.23(2H, m), 3.13(2H, m), 3.50(1H, m), 3.53(3H, s), 3.68(2H, m), 6.58(2H, m), 6.68(1H, s), 6.91(2H, m), 7.81(2H, d, J = 6.0 Hz), 8.72(2H, d, J = 6.0 Hz) (CDCl3)	380
XB165	1.91-1.99(4H, m), 2.84(3H, s), 3.07(2H, m), 3.55(3H, s), 3.77(2H, m), 3.84(1H, m), 6.69(1H, s), 6.75-6.87(3H, m), 7.27(2H, m), 7.82(2H, d, J = 6.3 Hz), 8.72(2H, d, J = 6.3 Hz) (CDCl3)	376
XB168	1.52(2H, m), 1.79(3H, s), 1.96(2H, m), 3.09(2H, m), 3.42(3H, s), 3.64(2H, m), 4.86(1H, m), 6.63(1H, s), 7.09-7.19(4H, m), 7.74(2H, d, J = 6.0 Hz), 8.70(2H, d, J = 6.0 Hz) (CDCl3)	422

XB169	1.86(1H, br s), 1.95(2H, m), 2.30(2H, m), 3.47-3.63(7H, m), 6.68(1H, s), 7.30-7.44(3H, m), 7.54(2H, d, J = 7.5 Hz), 7.84(2H, d, J = 6.0 Hz), 8.71(2H, d, J = 6.0 Hz) (CDCl3)	363
XB201	2.20-2.31(4H, m), 3.20-3.29(2H, m), 3.46(3H, s), 3.87(2H, d, J=13.8 Hz), 6.86(1H, s), 7.29-7.35(2H, m), 7.64-7.69(2H, m), 8.01(2H, dd, J=1.5, 4.5 Hz), 8.70(2H, dd, J=1.5, 4.5 Hz)(DMSO-d6)	390
XB227	2.16-2.25(2H, m), 2.48-2.58(2H, m), 3.14-3.21(2H, m), 3.40(3H, s), 3.41-3.50(2H, m), 6.79(1H, s), 7.28-7.33(1H, m), 7.39-7.46(4H, m), 7.97(2H, dd, J=1.5, 4.5 Hz), 8.68(2H, dd, J=1.5, 4.5 Hz)(DMSO-d6)	389
XB256	1.77-1.85(8H, m), 2.10(1H, m), 2.51(4H, m), 2.97-3.02(3H, m), 3.58(3H, s), 3.55(3H, s), 3.62(2H, s), 3.74(1H, m), 6.66(1H, s), 7.16(2H, d, J=7.8Hz), 7.32(1H, d, J=7.8Hz), 7.80(2H, dd, J=1.5, 4.8Hz), 8.70(2H, dd, J=1.5, 4.8Hz)(CDCl3)	430
XB257	1.77-1.85(8H, m), 2.10(1H, m), 2.51(4H, m), 2.97-3.02(3H, m), 3.58(3H, s), 3.55(3H, s), 3.62(2H, s), 3.74(1H, m), 6.66(1H, s), 7.16(2H, d, J=7.8Hz), 7.32(1H, d, J=7.8Hz), 7.80(2H, dd, J=1.5, 4.8Hz), 8.70(2H, dd, J=1.5, 4.8Hz)(CDCl3)	430
XB258	1.86 (4H, m), 1.99 (4H, m), 3.03 (5H, m), 3.35 (4H, m), 3.43 (3H, s), 3.73 (2H, m), 4.30 (2H, s), 6.81 (1H, s), 7.43 (2H, d, J = 8.1 Hz), 7.69 (2H, d, J = 8.1 Hz), 7.97 (2H, d, J = 6.0 Hz), 8.69 (2H, d, J = 6.0 Hz), 11.01 (1H, br s) (DMSO-d6)	429
XB259	1.75 (1H, m), 1.89 (3H, m), 1.97 (3H, m), 2.13 (1H, d, J = 13.6 Hz), 3.02 (3H, m), 3.46 (2H, t, J = 7.0 Hz), 3.55 (3H, s), 3.66 (2H, t, J = 7.0 Hz), 3.75 (2H, m), 6.66 (1H, s), 7.30 (2H, d, J = 8.0 Hz), 7.52 (2H, d, J = 8.0 Hz), 7.80 (2H, dd, J = 6.0, 1.2 Hz), 8.71 (2H, dd, J = 6.0, 1.2 Hz)	443
XB260	1.77-1.86(8H, m), 2.94-3.06(5H, m), 3.43(3H, s), 3.73-3.78(2H, m), 4.28-4.31(2H, m), 6.81(1H, s), 7.44(2H, d, J=7.3Hz), 7.57(2H, d, J=7.3Hz), 7.96(2H, d, J=4.2Hz), 8.63(2H, d, J=4.2Hz), 10.75-10.80(1H, br)(DMSO-d6)	430
XB261	1.45-1.59(6H, m), 1.73-1.94(4H, m), 2.10-2.15(4H, m), 2.98-3.05(3H, m), 3.49(2H, m), 3.55(3H, s), 3.74-3.77(2H, m), 6.65(1H, s), 7.22(2H, d, J=8.4 Hz), 7.33(2H, d, J=8.4 Hz), 7.80(2H, d, J=6.0 Hz), 8.70(2H, d, J=6.0 Hz)(CDCl3)	444

XB262	1.19-1.31(6H, m), 1.80-1.94(7H, m), 2.10(1H, m), 2.32(3H, s), 2.45(1H, m), 2.97-3.02(3H, m), 3.54(3H, s), 3.55(2H, m), 3.69-3.74(2H, m), 6.66(1H, s), 7.22(2H, d, J=8.4 Hz), 7.33(2H, d, J=8.4 Hz), 7.81(2H, d, J=6.0 Hz), 8.71(2H, d, J=6.0 Hz)(CDCl3)	472
XB263	1.77-1.86(4H, m), 2.44(1H, m), 2.80(6H, s), 2.98-3.16(4H, m), 3.42(3H, s), 3.62-3.79(6H, m), 4.42(3H, m), 6.93(1H, s), 7.45(2H, d, J=8.4 Hz), 7.58(2H, d, J=8.4 Hz), 8.21(2H, d, J=6.0 Hz), 8.82(2H, d, J=6.0 Hz)(DMSO-d6)	473
XB264	0.99(3H, t, J=7.2Hz), 1.20-1.24(6H, m), 1.80-1.93(7H, m), 2.10(1H, m), 2.50-2.55(2H, m), 2.97-3.00(3H, m), 3.55(3H, s), 3.60(2H, s), 3.69-3.74(2H, m), 6.65(1H, s), 7.18(2H, d, J=8.4 Hz), 7.34(2H, d, J=8.4 Hz), 7.80(2H, d, J=6.0 Hz), 8.70(2H, d, J=6.0 Hz)(CDCl3)	486
XB265	1.02(6H, d, J=6.6Hz), 1.23-1.28(5H, m), 1.72-2.15(9H, m), 2.51(1H, m), 2.97-3.08(4H, m), 3.55(3H, s), 3.70(2H, s), 3.74-3.78(2H, m), 6.65(1H, s), 7.18(2H, d, J=7.8 Hz), 7.34(2H, d, J=7.8 Hz), 7.81(2H, d, J=6.0 Hz), 8.70(2H, d, J=6.0 Hz)(CDCl3)	500
XB266	1.77-1.87(4H, m), 2.44(1H, m), 2.80(6H, s), 2.99-3.09(4H, m), 3.42(3H, s), 3.62-3.79(6H, m), 4.42(3H, m), 6.95(1H, s), 7.45(2H, d, J=8.1 Hz), 7.58(2H, d, J=8.1 Hz), 8.29(2H, d, J=6.0 Hz), 8.86(2H, d, J=6.0 Hz)(DMSO-d6)	473
XB267	1.85-1.88(4H, m), 2.81(1H, m), 2.99-3.07(2H, m), 3.44(3H, s), 3.79-3.84(2H, m), 6.82(1H, s), 7.29(2H, d, J=8.4 Hz), 7.51(2H, d, J=8.4 Hz), 8.01(2H, d, J=6.0 Hz), 8.70(2H, d, J=6.0 Hz)(DMSO-d6)	425
XB268	1.83-1.99(4H, m), 2.83(1H, m), 2.98-3.06(2H, m), 3.45(3H, s), 3.79-3.84(2H, m), 6.82(1H, s), 7.29-7.43(3H, m), 7.53(1H, s), 8.01(2H, d, J=6.0 Hz), 8.70(2H, d, J=6.0 Hz)(DMSO-d6)	425
XB269	1.74-1.96(8H, m), 2.51(1H, m), 2.65-3.01(2H, m), 3.04-3.18(4H, m), 3.44(3H, s), 3.77-3.81(2H, m), 6.49(2H, d, J=8.4 Hz), 6.80(1H, s), 7.09(2H, d, J=8.4 Hz), 8.00(2H, dd, J=4.5, 1.8 Hz), 8.69(2H, dd, J=4.5, 1.8 Hz)(DMSO-d6)	416
XB270	1.83-1.99(8H, m), 2.72(1H, m), 2.97-3.07(2H, m), 3.19-3.23(4H, m), 3.45(3H, s), 3.78-3.83(2H, m), 6.38(1H, d, J=7.8 Hz) 6.44(1H, s), 6.53(1H, d, J=7.5 Hz), 6.81(1H, s), 7.09(1H, dd, J=7.8, 7.8 Hz), 8.00(2H, d, J=5.4 Hz), 8.70(2H, d, J=5.7 Hz)(DMSO-d6)	416

XB271	1.81-1.92(2H, m), 2.07-2.15(2H, m), 3.02-3.21(3H, m), 3.51(3H, s), 3.79-3.83(2H, m), 6.80-6.86(2H, m), 7.10-7.17(2H, m), 7.58-7.63(1H, m), 8.00(2H, d, J=4.2Hz), 8.69(2H, d, J=4.2Hz), 10.90(1H, brs)(DMSO-d6)	404
XB272	1.53-1.63(2H, m), 2.02-2.07(2H, m), 3.11-3.19(2H, m), 3.41(3H, s), 3.60-3.72(3H, m), 6.12(1H, d, J=8.2Hz), 6.79-6.80(2H, m), 6.88-6.91(2H, m), 7.25-7.31(1H, m), 8.00(2H, d, J=4.2Hz), 8.70(2H, d, J=4.2Hz)(DMSO-d6)	430
XB273	1.47-1.57(2H, m), 2.00-2.07(2H, m), 2.71(6H, s), 3.04-3.12(2H, m), 3.37-3.42(4H, m), 3.67-3.71(2H, m), 4.87(1H, d, J=8.2Hz), 6.56-6.65(4H, m), 6.79(1H, s), 7.99(2H, d, J=4.2Hz), 8.69(2H, d, J=4.2Hz)(DMSO-d6)	405
XB274	1.51-1.61(2H, m), 2.01-2.07(2H, m), 3.08-3.16(2H, m), 3.43(3H, s), 3.50-3.53(1H, m), 3.67(3H, s), 3.70-3.73(2H, m), 5.56(1H, d, J=8.2Hz), 6.09-6.24(3H, m), 6.78(1H, s), 6.96(1H, dd, J=7.2Hz, 7.3Hz), 7.99(2H, d, J=4.2Hz), 8.69(2H, d, J=4.2Hz)(DMSO-d6)	392
XB275	1.48-1.59(2H, m), 2.00-2.07(2H, m), 3.06-3.13(2H, m), 3.40(3H, s), 3.44-3.46(1H, m), 3.64(3H, s), 3.66-3.71(2H, m), 5.07(1H, d, J=8.2Hz), 6.59(2H, d, J=7.2Hz), 6.70(2H, d, J=7.2Hz), 6.79(1H, s), 7.98(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	392
XB276	1.57-1.68(2H, m), 2.03-2.07(2H, m), 3.05-3.09(2H, m), 3.41(3H, s), 3.51-3.77(6H, m), 4.57(1H, d, J=8.2Hz), 6.53-6.58(1H, m), 6.66-6.69(1H, m), 6.74-6.82(3H, m), 7.99(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	392
XB277	1.78-1.92(4H, m), 2.94-3.07(5H, m), 3.41-3.86(10H, m), 6.88-6.92(1H, m), 7.04(1H, s), 7.21-7.24(2H, m), 7.39-7.44(1H, m), 8.48(2H, d, J=4.2Hz), 8.95(2H, d, J=4.2Hz)(DMSO-d6)	406
XB278	1.68-2.08(4H, m), 2.90-2.96(2H, m), 3.15(3H, s), 3.38(3H, s), 3.81-4.04(7H, m), 7.03(1H, s), 7.13(2H, d, J=7.2Hz), 7.81(2H, d, J=7.2Hz), 8.45(2H, d, J=4.2Hz), 8.94(2H, d, J=4.2Hz)(DMSO-d6)	406
XB279	1.76-1.85(4H, m), 2.65(3H, s), 2.85-2.94(2H, m), 3.41-3.42(1H, m), 3.44(3H, s), 3.74-3.79(2H, m), 4.02(3H, s), 6.78(1H, s), 6.83-6.99(4H, m), 7.97(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	406

XB280	1.86-1.98(4H, m), 2.98(6H, s), 3.01-3.10(2H, m), 3.40-3.92(11H, m), 7.00-7.13(2H, m), 7.42-7.50(2H, m), 8.51(2H, d, J=4.2Hz), , 8.97(2H, d, J=4.2Hz)(DMSO-d6)	419
XB281	1.69-1.88(3H, m), 1.92-2.00(1H, m), 2.92-3.06(3H, m), 3.42(3H, s), 3.63-3.88(2H, m), 6.79(1H, s), 7.33(2H, d, J=8.4 Hz), 7.54(2H, d, J=8.4 Hz), 7.96(2H, d, J=5.7 Hz), 8.68(2H, d, J=6.0 Hz)(DMSO-d6)	425
XB282	2.51-2.60(4H, m), 3.47(3H, s), 3.65-3.68(4H, m), 6.54(1H, s), 8.00(2H, d, J=4.2Hz), 8.70(1H, d, J=4.2Hz)(DMSO-d6)	285
XB283	1.71-1.82(4H, m), 2.40-2.49(2H, m), 2.50-2.53(4H, m), 2.86-2.94(3H, m), 3.06-3.09(4H, m), 3.41(3H, s), 3.50-3.68(4H, m), 4.43-4.46(1H, m), 6.78(1H, s), 6.89(2H, d, J=7.2Hz), 7.17(2H, d, J=7.2Hz), 7.95(2H, d, J=4.2Hz), 8.67(2H, d, J=4.2Hz)(DMSO-d6)	475
XB284	1.71-1.93(4H, m), 2.86(6H, s), 2.88-2.97(3H, m), 3.41(3H, s), 3.65-3.75(2H, m), 6.73(2H, d, J=7.2Hz), 6.78(1H, s), 7.15(2H, d, J=7.2Hz), 7.96(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	390
XB285	1.72-1.83(4H, m), 2.89-2.96(3H, m), 3.05-3.09(4H, m), 3.42(3H, s), 3.71-3.75(4H, m), 6.78(1H, s), 6.91(2H, d, J=7.2Hz), 7.20(2H, d, J=7.2Hz), 7.96(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	432
XB286	1.52-1.91(10H, m), 2.86-2.94(3H, m), 3.07-3.10(4H, m), 3.41(3H, s), 3.66-3.75(2H, m), 6.78(1H, s), 6.89(2H, d, J=7.2Hz), 7.16(2H, d, J=7.2Hz), 7.95(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	430
XB287	1.64-1.88(4H, m), 2.21(3H, s), 2.42-2.45(4H, m), 2.89-2.94(3H, m), 3.07-3.11(4H, m), 3.41(3H, s), 3.69-3.75(2H, m), 6.78(1H, s), 6.90(2H, d, J=7.2Hz), 7.18(2H, d, J=7.2Hz), 7.96(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	445
XB288	1.43-1.47(2H, m), 1.71-1.90(6H, m), 2.19(6H, s), 2.58-2.66(2H, m), 2.87-2.95(2H, m), 2.87-2.98(3H, m), 3.30-3.32(1H, m), 3.41(3H, s), 3.64-3.75(4H, m), 6.78(1H, s), 6.90(2H, d, J=7.2Hz), 7.16(2H, d, J=7.2Hz), 7.96(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	473

XB289	1.72-1.94(4H, m), 2.92-2.99(3H, m), 3.08-3.11(4H, m), 3.41(3H, s), 3.52-3.56(4H, m), 3.66-3.75(2H, m), 5.11(2H, s), 6.78(1H, s), 6.93(2H, d, J=7.2Hz), 7.20(2H, d, J=7.2Hz), 7.28-7.39(5H, m), 7.95(2H, d, J=4.2Hz), 8.69(2H, d, J=4.2Hz)(DMSO-d6)	565
XB290	1.53-1.63(2H, m), 1.85-1.89(2H, m), 2.14(3H, s), 2.31-2.46(8H, m), 2.86-2.94(2H, m), 3.34-3.35(1H, m), 3.39(3H, s), 3.70-3.74(2H, m), 6.79(1H, s), 7.98(2H, d, J=4.2Hz), 8.69(2H, d, J=4.2Hz)(DMSO-d6)	369
XB291	1.52-1.63(2H, m), 1.85-1.90(2H, m), 2.34-2.42(11H, m), 2.86-2.94(2H, m), 3.39(3H, s), 3.45-3.50(2H, m), 3.70-3.74(2H, m), 4.38-4.40(1H, m), 6.80(1H, s), 7.98(2H, d, J=4.2Hz), 8.69(2H, d, J=4.2Hz)(DMSO-d6)	399
XB292	1.71-1.83(4H, m), 2.81-3.00(11H, m), 3.28-3.30(1H, m), 3.41(3H, s), 3.66-3.75(2H, m), 6.78(1H, s), 6.89(2H, d, J=7.2Hz), 7.17(2H, d, J=7.2Hz), 7.96(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	431
XB293	1.43-1.53(2H, m), 1.93-1.98(3H, m), 2.63-2.66(1H, m), 2.92-3.00(2H, m), 3.39(3H, s), 3.62-3.79(7H, m), 6.78(1H, s), 6.88-6.97(2H, m), 7.18-7.22(1H, m), 7.35(1H, d, J=7.3Hz), 7.98(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	406
XB294	1.42-1.53(2H, m), 1.96-2.08(3H, m), 2.61-2.67(1H, m), 2.91-2.99(2H, m), 3.39(3H, s), 3.62-3.80(7H, m), 6.77(1H, s), 6.86(2H, d, J=7.2Hz), 7.25(2H, d, J=7.2Hz), 7.97(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	406
XB295	1.81-1.91(2H, m), 2.61-2.20(2H, m), 2.96-3.17(6H, m), 3.41-3.47(5H, m), 3.74-3.86(4H, m), 6.90-7.03(3H, m), 7.21-7.29(2H, m), 8.44(2H, d, J=4.2Hz), 8.93(2H, d, J=4.2Hz), 9.30-9.38(2H, br)(DMSO-d6)	420
XB296	1.80-1.91(2H, m), 2.07-2.21(2H, m), 2.96-3.11(6H, m), 3.34-3.41(5H, m), 3.69-3.86(4H, m), 6.91(2H, d, J=7.2Hz), 7.05(1H, s), 7.20(2H, d, J=7.2Hz), 8.49(2H, d, J=4.2Hz), 8.96(2H, d, J=4.2Hz), 9.44-9.50(2H, br)(DMSO-d6)	420

XB297	1.41-1.51(2H, m), 1.91-1.96(3H, m), 2.61-2.65(1H, m), 2.86(6H, s), 2.91-2.98(2H, m), 3.38(3H, s), 3.61-3.67(4H, m), 6.70(2H, d, J=7.2Hz), 6.77(1H, s), 7.20(2H, d, J=7.2Hz), 7.97(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	419
XB298	2.04(2H, d, J=13.1Hz), 2.34(3H, s), 2.53(2H, m), 2.91(2H, m), 3.55(3H, s), 3.70(2H, d, J=13.1Hz), 4.27(1H, m), 6.08(1H, s), 6.86(1H, s), 7.36-7.48(5H, m), 7.80(2H, dd, J=1.6, 4.3Hz), 8.69(2H, dd, J=1.3, 4.5Hz)(CDCl3)	426
XB299	2.06(2H, d, J=13.1Hz), 2.22(2H, m), 2.99(2H, m), 3.13(1H, m), 3.54(3H, s), 3.70(2H, d, J=13.1Hz), 6.68(1H, s), 7.25(1H, s), 7.44-7.48(2H, m), 7.64-7.67(3H, m), 7.78(2H, dd, J=1.6, 4.3Hz), 8.69(2H, dd, J=1.3, 4.5Hz)(CDCl3)	413
XB300	1.75-1.85(4H, m), 2.97-3.10(5H, m), 3.43(3H, s), 3.71-3.76(2H, m), 3.88-3.93(2H, m), 6.70(1H, dd, J=7.2, 7.3Hz), 6.79(1H, s), 7.02-7.06(2H, m), 7.15-7.23(3H, m), 7.31-7.35(2H, m), 7.97(2H, d, J=4.2Hz), 8.69(2H, d, J=4.2Hz)(DMSO-d6)	464
XB301	1.09-1.34(5H, m), 1.57-1.88(9H, m), 2.78-2.93(3H, m), 3.08-3.18(1H, m), 3.41(3H, s), 3.62-3.74(2H, m), 5.27(1H, d, J=8.2Hz), 6.52(2H, d, J=7.2Hz), 6.79(1H, s), 7.01(2H, d, J=7.2Hz), 7.96(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	444
XB302	1.10-1.16(1H, m), 1.32-1.46(4H, m), 1.64-1.82(9H, m), 2.68(3H, s), 2.82-2.93(3H, m), 3.41(3H, s), 3.54-3.74(3H, m), 6.72(2H, d, J=7.2Hz), 6.78(1H, s), 7.12(2H, d, J=7.2Hz), 7.95(2H, d, J=4.2Hz), 8.68(2H, d, J=4.2Hz)(DMSO-d6)	458

No.	NMR	MS[M+1]
YA0262	(DMSO-d6): 3.47(3H, s), 3.48-3.66(4H, m), 3.89-4.02(2H, m), 4.98(1H, m), 7.06(1H, s), 7.35-7.59(3H, m), 7.99(1H, dd, J=7.2, 6.9Hz), 8.25(1H, dd, J=5.4, 1.2Hz), 9.01(1H, d, J=5.1Hz), 9.31(1H, s), 9.84(1H, m), 10.19(1H, m).	367
YA0263	(CDCl3) :3.01(1H,dd,J=10.5,12.4Hz), 3.10-3.35(3H,m), 3.57(3H,s), 3.55-3.65(2H,m), 4.05(1H,dd,J=2.4,10.4Hz), 7.00-7.10(1H,m), 7.30(1H,s), 7.22(2H,m), 7.30-7.42(2H,m), 8.15(1H,dd,J=1.3,5.2Hz), 8.86(1H,d,J=5.2Hz), 9.27(1H,d,J=1.0Hz).	367

YA0264	2.83(1H, dd, J=11.0, 11.9 Hz), 2.93(1H, s), 2.99-3.10(3H, m), 3.45(3H, s), 3.61-3.69(2H, m), 3.95(1H, dd, J=2.1, 10.3 Hz), 6.97(1H, s), 7.19(2H, t, J=8.8 Hz), 7.48-7.56(2H, m), 8.17(1H, dd, J=1.0, 5.0 Hz), 8.99(1H, d, J=5.1 Hz), 9.29(1H, d, J=1.0 Hz)(DMSO-d6)	367
YA0264 (HCl)	3.39-3.47(2H, m), 3.45(3H, s), 3.55-3.66(2H, m), 3.86-3.96(2H, m), 4.64-4.71(1H, m), 7.05(1H, s), 7.36(2H, t, J=8.7 Hz), 7.77-7.81(2H, m), 8.23(1H, dd, J=1.2, 5.1 Hz), 9.02(1H, d, J=5.1 Hz), 9.32(1H, d, J=1.2 Hz), 9.79(1H, d, J=10.2 Hz), 10.13-10.28(1H, m)(DMSO-d6)	367
YA0267	(CDCl3) :2.81(1H,dd,J=10.5,12.6Hz), 3.15-3.40(3H,m), 3.50-3.65(4H,m),3.65-3.80(1H,m), 4.51(1H,dd,J=2.7,10.5Hz), 7.20-7.45(4H,m), 7.74(1H,dd,J=1.5,7.5Hz), 8.15-8.20(1H,m), 8.85(1H,d,J=5.1Hz), 9.27(1H,s).	383
YA0268	(CDCl3) :3.00(1H,dd,J=10.5,12.6Hz), 3.10-3.35(3H,m), 3.50-3.70(5H,m), 4.03(1H,dd,J=2.4,10.5Hz), 7.32(4H,m), 7.50(1H,s), 8.15(1H,dd,J=1.2,5.1Hz), 8.87(1H,d,J=5.1Hz), 9.27(1H,d,J=1.5Hz).	383
YA0269	3.40-3.50(2H, m), 3.45(3H, s), 3.53-3.65(2H, m), 3.87-3.97(2H, m), 4.68(1H, t, J=10.2 Hz), 7.05(1H, s), 7.59(2H, d, J=11.1 Hz), 7.75(2H, d, J=11.1 Hz), 8.22(1H, dd, J=1.5, 5.4 Hz), 9.02(1H, d, J=5.1 Hz), 9.31(1H, s), 9.83(1H, d, J=9.6 Hz), 10.11-10.25(1H, m)(DMSO-d6)	383
YA0274	(DMSO-d6):3.45(3H,s), 3.40-3.70(4H,m), 3.92(2H,t,J=14.1Hz), 4.67(1H,br s), 7.06(1H,s), 7.68(2H,d,J=10.0Hz), 7.72(2H,d,J=10.0Hz), 8.22(1H,d,J=4.8Hz), 9.03(1H,d,J=4.8Hz), 9.31(1H,s), 9.88(1H,br s), 10.22(1H,br s).	427
YA0289	3.38-3.57(4H, m), 3.35(3H,s), 3.89(3H,s), 3.91-3.97(2H, m), 4.84-4.94(1H, m), 7.06(1H, s), 7.08-7.15(1H, m), 7.18(1H, d, J=8.4 Hz), 7.41-7.49(1H, m), 7.68(1H, d, J=7.6 Hz), 8.25(1H, d, J=4.9 Hz), 9.04(1H, d, J=5.1 Hz), 9.32(1H, s)(DMSO)	379
YA0290	(DMSO-d6) :3.40-3.75(7H,m), 3.92(2H,t,J=13.2Hz), 4.64(1H,t,J=9.1Hz), 7.00-7.10(2H,m), 7.23(1H,d,J=7.6Hz), 7.35(1H,s), 7.42(1H,t, J=7.8Hz), 8.23(1H,d,J=5.6Hz), 9.02(1H,d,J=5.2Hz), 9.32(1H,s), 9.65-9.80(1H,brd), 9.90-10.15(1H,brd).	379
YA0291	(DMSO-d6): 3.42(3H, s), 3.36-3.58(4H, m), 3.79(3H, s), 3.83-3.95(2H, m), 4.61(1H, m), 7.05(1H, s), 7.07(2H, d, J=8.1Hz), 7.60(2H, d, J=8.7Hz), 8.22(1H, dd, J=5.1, 1.2Hz), 9.02(1H, d, J=5.4Hz), 9.31(1H, s), 9.58-9.74(2H, m).	379

YA0294	1.31(3H, t, J=6.8 Hz), 3.44-3.59(2H, m), 3.48(3H, s), 3.87-3.97(2H, m), 4.09-4.20(2H, m), 4.80-4.91(1H, m), 7.06(1H, s), 7.09-7.17(2H, m), 7.44(1H, t, J=7.4 Hz), 7.64(1H, d, J=7.5 Hz), 8.23(1H, d, J=5.3 Hz), 9.03(1H, d, J=5.2 Hz), 9.32(1H, s), 9.49-9.60(2H, m)(DMSO-d6)	393
YA0304	(DMSO-d6):3.45(3H,s), 3.64(3H,m), 3.93(3H,m), 4.78(1H,t,J=9.6Hz), 7.13(1H,s), 7.97(2H,d,J=8.7Hz), 8.01(2H,d,J=8.7Hz), 8.43(2H,d,J=6.2Hz), 8.93(2H,d,J=6.2Hz), 10.12(1H,s), 10.70(1H,s).	374
YA0331	(CDCl3):2.00(4H,m), 3.05(1H,t,J=11.7Hz), 3.18-3.30(3H,m), 3.29(4H,m), 3.56(3H,s), 3.62(2H,m), 3.91(1H,d,J=8.4Hz), 6.57(2H,d,J=8.7Hz), 7.31(3H,m), 8.17(1H,dd,J=1.2,5.1Hz), 8.85(1H,d,J=5.1Hz), 9.27(1H,d,J=1.2Hz).	418
YA0337	(CDCl3):3.02(1H,dd,J=10.8,12.6Hz), 3.18(8H,m), 3.56(3H,s), 3.61(1H,t,J=9.0Hz), 3.87(4H,m), 3.95(1H,dd,J=2.7,10.8Hz), 6.93(2H,d,J=8.9Hz), 7.31(1H,s), 7.36(2H,d,J=8.9Hz), 8.16(1H,dd,J=1.5,5.4Hz), 8.85(1H,d,J=5.4Hz), 9.27(1H,d,J=1.5Hz).	434
YA0340	(CDCl3):2.36(3H,s), 2.59(4H,m), 3.02(1H,t,J=11.4Hz), 3.16-3.29(7H,m), 3.26(3H,s), 3.61(2H,m), 3.94(1H,d,J=8.0Hz), 6.94(2H,d,J=8.7Hz), 7.31(1H,s), 7.34(2H,d,J=8.7Hz), 8.16(1H,d,J=5.1Hz), 8.85(1H,d,J=5.1Hz), 9.27(1H,s).	447
YA0361	3.39-3.50(2H, m), 3.47(3H, s), 3.61-3.73(1H, m), 3.78(3H, s), 3.83(3H, s), 3.87-3.92(3H, m), 4.92(1H, t, J=10.5 Hz), 6.99-7.11(3H, m), 7.57(1H, d, J=2.7 Hz), 8.25(1H, dd, J=1.2, 5.1 Hz), 9.03(1H, d, J=4.8 Hz), 9.31(1H, d, J=0.9 Hz), 9.78(1H, d, J=9.0 Hz), 10.21-10.38(1H, m)(DMSO-d6)	409
YA0362	(DMSO-d6): 3.47(3H, s), 3.37-4.04(6H, m), 3.94(6H, s), 5.09(1H, m), 6.82(2H, d, J=8.4Hz), 7.05(1H, s), 7.45(1H, t, J=8.4Hz), 8.22(1H, m), 8.24(1H, dd, J=5.4, 1.5Hz), 9.05(1H, d, J=5.1Hz), 9.32(1H, s), 10.06(1H, m).	409
YA0366	3.38-3.60(4H, m), 3.47(3H, s), 3.88-3.95(2H, m), 3.90(3H, s), 4.86-4.92(1H, m), 6.96-7.01(1H, m), 7.06(1H, s), 7.12(1H, d, J=8.8 Hz), 7.71-7.79(1H, m), 8.23-8.24(1H, m), 9.03(1H, d, J=5.1 Hz), 9.32(1H, d, J=1.2 Hz), 9.55-9.72(2H, m)(DMSO)	397
YA0367/ YA0368	(DMSO-d6) :3.30-3.75(7H,m), 3.80-4.00(5H,m), 4.80-5.00(1H,m), 6.93-7.00(1H,m), 7.05(1H,s), 7.11(1H,dd,J=2.4,11.4Hz), 7.84(1H,m), 8.23(1H,d,J=5.1Hz), 9.03(1H,d,J=5.1Hz), 9.31(1H,s), 9.60-9.80(1H,brd), 9.90-10.15(1H,brd).	397

YA0370	3.31-3.56(3H, m), 3.45(3H, s), 3.69-3.78(1H, m), 3.90-3.99(2H, m), 3.94(3H, s), 4.95-5.03(1H, m), 6.96-7.02(1H, m), 7.03-7.09(2H, m), 7.49-7.56(1H, m), 8.24(1H, d, J=4.4 Hz), 8.51-8.69(1H, m), 9.03(1H, d, J=5.1 Hz), 9.32(1H, s), 10.55-10.67(1H, m) (DMSO)	397
YA0378	2.77(1H, dd, J=10.5, 12.0 Hz), 3.18-3.30(3H, m), 3.61(3H, s), 3.64-3.71(2H, m), 3.86(3H, s), 4.37(1H, dd, J=2.1, 10.1 Hz), 6.89(1H, d, J=1.7 Hz), 6.99(1H, dd, J=1.6, 8.2 Hz), 7.32(1H, s), 7.50(1H, d, J=8.2 Hz), 8.19(1H, d, J=5.2 Hz), 8.86(1H, d, J=5.2 Hz), 9.27(1H, s)(CDCl3)	413
YA0399	(CDCl3) :2.76(1H,dd,J=10.2,12.3Hz), 3.10-3.40(3H,m), 3.55-3.80(5H,m), 3.85(3H,s), 4.39(1H,dd,J=2.4,10.2Hz), 6.78(1H,d,J=8.7Hz), 7.32(1H,s), 7.39(1H,dd,J=2.7,8.7Hz), 7.72(1H,d,J=2.4Hz), 8.20(1H,dd,J=1.2,5.1Hz), 8.87(1H,d,J=5.1Hz), 9.27(1H,d,J=1.2Hz).	457
YA0408	(CDCl3): 1.98-2.03(4H, m), 2.84(1H, m), 3.17-3.32(7H, m), 3.60(3H, s), 3.59-3.71(2H, m), 3.85(3H, s), 4.28(1H, d, 8.4Hz), 6.10(1H, d, J=1.8Hz), 6.18(1H, d, J=8.3Hz), 7.29(1H, s), 7.33(1H, d, J=8.4Hz), 8.21(1H, d, J=5.2Hz), 8.85(1H, d, J=5.2Hz), 9.27(1H, s).	448
YA0409	(CDCl3) :1.95-2.10(4H,m), 2.95-3.10(1H,m), 3.19-3.45(7H,m), 3.59(3H,s), 3.50-3.80(2H,m), 3.80(3H,s), 4.48(1H,dd,J=2.2,10.2Hz), 6.49(1H,dd,J=3.0,8.9Hz), 6.63-6.87(2H,m), 7.32(1H,s), 8.20(1H,dd,J=1.4,5.2Hz), 8.86(2H,d,J=5.2Hz), 9.27(1H,d,J=1.1Hz).	448
YA0414	(CDCl3) :3.14(2H,m), 3.22(1H,t,J=11.6Hz), 3.41(1H,t,J=11.6Hz), 3.82(2H,m), 3.83(3H,s), 3.88(3H,s), 4.58(1H,dd,J=3.1,11.0Hz), 6.51(2H,m), 7.32(1H,s), 8.19(1H,dd,J=1.5,5.3Hz), 8.86(1H,d,J=5.3Hz), 9.27(1H,d,J=1.5Hz).	415
YA0423	(DMSO-d6):3.35-3.70(4H,m), 3.48(3H,s), 3.78(3H,s), 3.97(2H,m), 4.70(1H,m), 7.06(1H,t,J=7.7Hz), 7.07(1H,s), 7.15(1H,d,J=7.7Hz), 7.31(1H,d,J=7.7Hz), 7.39(1H,t,J=7.7Hz), 7.61(2H,d,J=8.1Hz), 7.70(2H,d,J=8.1Hz), 8.25(1H,d,J=4.5Hz), 9.07(1H,d,J=4.5Hz), 9.33(1H,s), 9.66(1H,br s).	455
YA0425	(DMSO-d6):3.61(3H,m), 3.76(3H,s), 3.81(3H,s), 4.01(3H,m), 4.69(1H,t,J=9.9Hz), 7.05(2H,d,J=9.0Hz), 7.07(1H,s), 7.67(2H,d,J=9.0Hz), 7.76(4H,s), 8.24(1H,dd,J=1.2,5.1Hz), 9.03(1H,d,J=5.1Hz), 9.32(1H,d,J=1.2Hz), 9.79(1H,d,J=10.2Hz), 10.07(1H,s).	455
YA0434	(DMSO-d6):3.30-3.70(4H,m), 3.42(3H,s), 3.96(2H,d,J=13.8Hz), 4.71(1H,t,J=11.3Hz), 7.06(1H,s), 7.33(2H,t,J=8.0Hz), 7.77(6H,m), 8.24(1H,d,J=5.4Hz), 9.03(1H,d,J=5.4Hz), 9.32(1H,s), 9.80(1H,d,J=8.7Hz), 10.03(1H,s).	443

YA0442	3.43-3.59(2H, m), 3.48(3H, s), 3.63-3.75(2H, m), 3.97-4.01(2H, m), 4.80-4.86(1H, m), 7.06(1H, s), 7.60-7.64(2H, m), 7.86-7.88(1H, m), 7.95-8.00(2H, m), 8.05-8.07(1H, m), 8.24-8.27(2H, m), 9.02(1H, d, J=5.4 Hz), 9.32(1H, s), 10.01(1H, d, J=10.2 Hz), 10.30-10.41(1H, m)(DMSO-d6)	399
YA0517	(CDCl3): 2.97(1H, dd, J=12.3, 10.5Hz), 3.18-3.28(5H, m), 3.58(3H, s), 3.59(1H, m), 3.77(1H, m), 4.27(1H, dd, 10.2, 2.7Hz), 4.62(2H, m), 6.89(1H, t, J=7.5Hz), 7.16(1H, m), 7.27(1H, m), 7.28(1H, s), 8.26(1H, dd, J=5.4, 1.5Hz), 8.86(1H, d, J=5.4Hz), 9.26(1H, s).	391
YA0864	(DMSO-d6) :3.15-3.35(1H,m), 3.38-3.50(4H,m), 3.70-4.30(9H,m), 5.00-5.20(1H,m), 7.00-7.10(2H,m), 7.10-7.20(1H,m), 7.30-7.50(6H,m), 8.15-8.20(1H,m), 8.30-8.40(1H,brd), 9.05(1H,d,J=5.1Hz), 9.31(1H,d,J=0.9Hz).	487
YA1074	(CDCl3) :1.80-2.40(3H, m), 3.12-3.34(4H, m), 3.39-4.20(7.6H, m), 4.50-5.07(0.6H, m), 5.30-5.60(0.7H, m), 5.72-6.05(0.1H, m), 6.52-6.80(2H, m), 6.82-7.22(1H, m), 7.28(1H, s), 8.18(1H, d,J=4.8Hz), 8.89(1H, d,J=5.1Hz), 9.28(1H, d,J=1.2Hz)	439
YA1339	(CDCl3) :2.50-2.62(1H,m), 2.80-2.95(1H,m), 3.02-3.20(1H,m), 3.25-3.40(1H,m), 3.50-3.74(5H,m), 3.75-3.80(1H,m), 3.85(3H,s), 6.60-6.80(2H,m), 7.30(1H,s), 7.48(1H,t,J=8.4Hz), 8.19(1H,dd,J=1.2,5.1Hz), 8.86(1H,d,J=5.1Hz), 9.27(1H,d,J=1.5Hz).	411
YA1340/ YA1341	(DMSO-d6) :2.55(3H,d,J=3.9Hz), 3.40-3.80(3H,m), 3.45(3H,s), 3.80-4.15(6H,m), 4.85-5.15(1H,m), 6.90-7.05(1H,m), 7.05(1H,s), 7.13(1H,dd,J=2.4,11.4Hz), 8.21(1H,dd,J=1.2,5.1Hz), 9.04(1H,d,J=5.1Hz), 9.31(1H,d,J=1.2Hz), 11.50-12.20(1H,brd).	411
YA1534	2.90-3.10 (1H, m), 3.15-3.35 (3H, m), 3.50-3.70 (5H, m), 3.80-4.05 (7H, m), 6.87 (1H, d, J = 8.1 Hz), 6.90-7.10 (2H, m), 7.31 (1H, s), 8.16 (1H, d, J = 4.6 Hz), 8.85 (1H, d, J = 5.0 Hz), 9.27 (1H, s) (CDCl3)	408
YA1535	3.45 (3H, s), 3.46 (2H, m), 3.64 (m, 2H), 3.91 (2H, t, J = 16.1 Hz), 4.68 (1H, t, J = 10.5 Hz), 7.05 (1H, s), 7.59 (2H, d, J = 8.4 Hz), 7.79 (2H, d, J = 8.4 Hz), 8.23 (1H, dd, J = 5.1, 1.2 Hz), 9.02 (1H, d, J = 5.1 Hz), 9.31 (1H, d, J = 1.2 Hz), 10.00 (1H, d, J = 8.7 Hz), 10.49 (1H, br s) (DMSO-6)	383
YA1536	3.45 (3H, s), 3.46 (2H, m), 3.64 (m, 2H), 3.91 (2H, t, J = 16.1 Hz), 4.68 (1H, t, J = 10.5 Hz), 7.05 (1H, s), 7.59 (2H, d, J = 8.4 Hz), 7.79 (2H, d, J = 8.4 Hz), 8.23 (1H, dd, J = 5.1, 1.2 Hz), 9.02 (1H, d, J = 5.1 Hz), 9.31 (1H, d, J = 1.2 Hz), 10.00 (1H, d, J = 8.7 Hz), 10.49 (1H, br s) (DMSO-6)	383

YA1537	2.39(3H, s), 2.60(4H, t, J=4.6Hz), 3.37(4H, t, J=4.8Hz), 3.53(3H, s), 7.27(1H, s), 8.18(1H, dd, J=1.2, 5.4Hz), 8.87(1H, d, J=5.1Hz), 9.28(1H, s)(CDCl3)	286
YA1538	2.64-2.74(1H, br.s), 2.66(2H, t, J=5.3Hz), 2.73(4H, t, J=4.4Hz), 3.39(4H, t, J=4.0Hz), 3.54(3H, s), 3.69-3.70(2H, m), 7.26(1H, s), 8.18(1H, d, J=5.0Hz), 8.88(1H, t, J=5.0Hz), 9.28(1H, s)(CDCl3)	316
YA1539	1.10(6H, t, J=6.6Hz), 2.71(4H, t, J=4.9Hz), 2.77(1H, m), 3.36(4H, t, J=4.9Hz), 3.54(3H, s), 7.27(1H, s), 8.18(1H, dd, J=1.1, 5.2Hz), 8.87(2H, d, J=5.1Hz), 9.27(1H, s)(CDCl3)	314
YA1540	1.15(6H, d, J=6.2Hz), 1.50(1H, br.s), 2.61(2H, dd, J=1.6, 12.4Hz), 3.06-3.16(2H, m), 3.49(2H, d, J=13.0Hz), 3.52(3H, s), 7.27(1H, s), 8.16(1H, dd, J=1.3, 5.0Hz), 8.88(1H, d, J=5.0Hz), 9.27(1H, d, J=1.3Hz)(CDCl3)	300
YA1541	2.98 (1H, t, J = 11.5 Hz), 3.20 (3H, m), 3.57 (3H, s), 3.58 (2H, m), 4.02 (1H, dd, J = 10.5, 2.2 Hz), 7.27 (1H, s), 7.29 (1H, d, J = 8.3 Hz), 7.46 (1H, d, J = 8.3 Hz), 7.61 (1H, s), 8.13 (1H, d, J = 5.2 Hz), 8.86 (1H, d, J = 5.2 Hz), 9.27 (1H, s) (CDCl3)	417
YA1542	3.44(3H, s), 3.62-3.73(2H, m), 3.86-3.93(2H, m), 4.66(1H, m), 7.05(1H, s), 7.45(1H, dd, J=8.4, 8.4Hz), 7.67(1H, d, J=8.4Hz), 7.81(1H, d, J=8.4Hz), 8.04(1H, s), 8.25(1H, dd, J=5.4, 1.5Hz), 9.02(1H, d, J=5.4 Hz), 8.18(1H, dd, J=5.4, 1.2 Hz), 8.99(1H, d, J=5.1 Hz), 9.32(1H, d, J=1.5 Hz), 10.13(1H, m), 10.67(1H, m) (DMSO)	427
YA1543	3.33 (1H, dd, J = 13.5, 8.9 Hz), 3.47 (3H, s), 3.79 (1H, dd, J = 13.5, 3.9 Hz), 4.73 (1H, d, J = 17.1 Hz), 4.22 (1H, d, J = 17.1 Hz), 4.82 (1H, dd, J = 8.9, 3.9 Hz), 6.08 (1H, s), 7.31 (2H, d, J = 8.4 Hz), 7.42 (2H, d, J = 8.4 Hz), 8.14 (1H, d, J = 5.1, 1.5 Hz), 8.90 (1H, d, J = 5.1 Hz), 9.29 (1H, d, J = 1.5 Hz) (CDCl3)	397
YA1544	1.97 (4H, m), 3.26 (4H, m), 3.39 (2H, m), 3.44 (3H, s), 3.60 (2H, m), 3.79 (1H, d, J = 13.5 Hz), 3.91 (1H, d, J =13.8 Hz), 4.48 (1H, t, J = 10.1 Hz), 6.66 (2H, d, J = 8.4 Hz), 7.04 (1H, s), 7.51 (2H, d, J = 8.4 Hz), 8.21 (1H, d, J = 5.1 Hz), 9.02 (1H, d, J = 5.1 Hz), 9.31 (1H, s), 9.70 (1H, d, J = 10.8 Hz), 10.07 (1H, br s) (DMSO-d6)	418
YA1545	3.21 (4H, m), 3.42 (2H, m), 3.44 (3H, s), 3.62 (2H, m), 3.79 (4H, m), 3.90 (2H, t, J = 14.6 Hz), 4.54 (1H, t, J = 10.5 Hz), 7.05 (1H, s), 7.13 (2H, d, J = 8.7 Hz), 7.62 (2H, d, J = 8.7 Hz), 8.22 (1H, d, J = 4.8 Hz), 9.02 (1H, d, J = 4.8 Hz), 9.31 (1H, s), 9.80 (1H, d, J = 9.3 Hz), 10.23 (1H, br s) (DMSO-d6)	434

YA1546	2.80 (3H, d, J = 4.5 Hz), 3.26 (4H, m), 3.44 (3H, s), 3.45 (4H, m), 3.60 (2H, m), 3.80 (1H, d, J = 3.5 Hz), 3.90 (3H, m), 4.54 (1H, t, J = 10.5 Hz), 7.04 (1H, s), 7.10 (2H, d, J = 8.7 Hz), 7.62 (2H, d, J = 8.7 Hz), 8.20 (1H, dd, J = 5.1, 1.2 Hz), 9.02 (1H, d, J = 5.1 Hz), 9.32 (1H, d, J = 1.2 Hz), 9.86 (1H, d, J = 10.2 Hz), 10.33 (1H, br s), 11.15 (1H, br s) (DMSO-d6)	447
YA1547	2.28(3H, s), 3.07(4H, t, J=4.7Hz), 3.37(4H, t, J=4.8Hz), 3.75(3H, s), 5.76(1H, s), 7.26-7.33(2H, m), 7.45(2H, dd, J=7.8, 7.8Hz), 7.79(2H, d, J=7.8Hz), 8.14(1H, d, J=5.4Hz), 8.87(1H, dd, J=7.8, 7.8Hz), 9.28(1H, d, J=1.2Hz)(CDCl3)	428
YA1548	2.37 (1H, m), 2.43 (1H, m), 2.80 (3H, d, J = 5.2 Hz), 2.81 (3H, d, J = 5.2 Hz), 3.28 (1H, q, J = 8.8 Hz), 3.40 (2H, m), 3.44 (3H, s), 3.57 (5H, m), 3.79 (1H, d, J = 11.4 Hz), 3.97 (2H, m), 4.50 (1H, t, J = 10.0 Hz), 6.69 (2H, d, J = 8.4 Hz), 7.05 (1H, s), 7.54 (2H, d, J = 8.4 Hz), 8.20 (1H, dd, J = 4.8, 1.2 Hz), 9.03 (1H, d, J = 4.8 Hz), 9.32 (1H, d, J = 1.2 Hz), 9.71 (1H, br s), 10.06 (1H, br s), 11.35 (1H, br s) (DMSO-d6)	461
YA1549	2.33 (1H, m), 2.41 (1H, m), 2.79 (3H, d, J = 4.8 Hz), 2.81 (3H, d, J = 4.8 Hz), 3.28 (1H, d, J = 8.4 Hz), 3.39 (2H, m), 3.44 (3H, s), 3.57 (5H, m), 3.79 (1H, d, J = 13.3 Hz), 3.97 (2H, m), 4.50 (1H, t, J = 11.6 Hz), 6.69 (2H, d, J = 8.4 Hz), 7.04 (1H, s), 7.55 (2H, d, J = 8.4 Hz), 8.21 (2H, d, J = 5.2 Hz), 9.02 (2H, d, J = 5.2 Hz), 9.32 (1H, s), 9.75 (1H, br s), 10.14 (1H, br s), 11.45 (1H, br s) (DMSO-d6)	461
YA1550	3.47 (3H, s), 3.60 (2H, m), 3.76 (2H, m), 3.81 (3H, s), 3.94 (2H, m), 4.68 (1H, m), 7.05 (2H, d, J = 8.6 Hz), 7.06 (1H, s), 7.67 (2H, d, J = 8.6 Hz), 7.76 (4H, s), 8.25 (1H, d, J = 5.0 Hz), 9.03 (1H, d, J = 5.0 Hz), 9.32 (1H, s) (DMSO-d6)	455
YA1551	1.18 (1H, m), 1.40 (4H, m), 1.70 (1H, m), 1.80 (4H, m), 2.55 (1H, m), 3.43 (2H, m), 3.45 (3H, s), 3.60 (2H, m), 3.91 (2H, m), 4.60 (1H, t, J = 10.8 Hz), 7.05 (1H, s), 7.35 (2H, d, J = 8.0 Hz), 7.64 (2H, d, J = 8.0 Hz); 9.03 (1H, d, J = 4.8 Hz), 9.31 (1H, s), 9.80 (1H, d, J = 8.8 Hz), 10.24 (1H, m) (DMSO-d6)	431
YA1552	3.02(4H, m), 3.23(4H, m), 3.49(3H, s), 7.08-7.67(10H, m), 8.15(1H, d, J=5.1Hz), 8.87(1H, d, J=5.1Hz), 9.27(1H, s)(CDCl3)	424
YA1553	2.90 (1H, dd, J = 13.2, 9.6 Hz), 3.16 (2H, m), 3.24 (1H, d, 14.4 Hz), 3.31 (3H, s), 3.34 (1H, d, J = 13.6 Hz), 3.47 (1H, t, J = 13.2 Hz), 3.80 (3H, m), 6.97 (1H, s), 7.38 (2H, m), 7.45 (3H, m), 7.64 (1H, dd, J = 5.2, 1.2 Hz), 8.94 (1H, d, J = 5.2 Hz), 9.28 (1H, d, J = 1.2 Hz), 9.54 (1H, br s), 9.78 (1H, br s) (DMSO-d6)	363

YA1554	2.95 (1H, m), 3.29-3.05 (3H, m), 3.34 (3H, s), 3.35 (1H, m), 3.44 (1H, t, J = 12.4 Hz), 3.79 (3H, m), 6.99 (1H, s), 7.40 (2H, d, J = 8.4 Hz), 7.51 (2H, d, J = 8.4 Hz), 7.76 (1H, dd, J = 4.8, 1.2 Hz), 8.96 (1H ,d, J = 4.8 Hz), 9.29 (1H, d, J = 1.2 Hz), 9.38 (1H, br s), 9.71 (1H, br s) (DMSO-d6)	397
YA1555	1.65 (2H, br s), 1.90 (4H, br s), 3.44 (6H, m), 3.45 (3H, s), 3.61 (2H, m), 3.88 (1H, d, J = 13.6 Hz), 3.94 (1H, d, J = 13.6 Hz), 4.66 (1H, t, J = 8.8 Hz), 7.05 (1H, s), 7.82 (4H, br s), 8.23 (1H, dd, J = 5.2, 1.2 Hz), 9.02 (1H, d, J = 5.2 Hz), 9.31 (1H, d, J = 1.2 Hz), 9.89 (1H, br s), 10.37 (1H, br s) (DMSO-d6)	432
YA1556	3.42 (2H, m), 3.45 (3H, s), 3.56 (2H, m), 3.85 (1H, d, J = 13.2 Hz), 3.93 (1H, d, J = 14.0 Hz), 4.55 (1H, t, J = 10.8 Hz), 6.94 (1H, br s), 7.05 (1H, s), 7.15 (4H, br s), 7.31 (2H, br s), 7.57 (2H, br s), 8.22 (1H, d, J = 4.8 Hz), 9.03 (1H, d, J = 4.8 Hz), 9.32 (1H, s), 9.66 (1H, br s), 9.90 (1H, br s) (DMSO-d6)	509
YA1557	1.40 (1H, m), 1.78 (8H, m), 2.18 (2H, d, J = 11.2 Hz), 2.78 (2H, m), 2.91 (2H, m), 3.30 (1H, m), 3.40 (3H, m), 3.44 (3H, s), 3.58 (2H, m), 3.82 (1H, d, J = 13.3 Hz), 3.93 (3H, m), 4.53 (1H, m), 7.05 (1H, s), 7.11 (2H, d, J = 8.8 Hz), 7.57 (2H, d, J = 8.8 Hz), 8.21 (1H, d, J = 5.2 Hz), 9.02 (1H, d, J = 5.2 Hz), 9.32 (1H, s), 9.73 (1H, d, J = 8.4 Hz), 10.09 (1H, br s), 10.39 (1H, br s) (DMSO-d6)	515
YA1558	2.84-2.91(1H, m), 3.01-3.05(4H, m), 3.22(3H, s), 3.46(3H, s), 3.68-3.72(2H, m), 4.07-4.11(1H, m), 6.95(1H, s), 7.78(2H, d, J=7.2Hz), 7.93(2H, d, J=7.2Hz), 8.31(1H, d, J=4.2Hz), 8.99(1H, d, J=4.2Hz), 9.28(1H, s)(DMSO-d6)	427
YA1559	1.84 (4H, m), 1.97 (2H, m), 2.13 (2H, m), 2.79 (2H, t, J = 11.6 Hz), 3.04 (2H, m), 3.24 (1H, m), 3.40 (2H, m), 3.44 (3H, s), 3.59 (2H, m), 3.80 (1H, d, J = 14.0 Hz), 3.91 (3H, m), 4.53 (1H, t, J = 11.2 Hz), 7.05 (1H, s), 7.13 (2H, d, J = 8.4 Hz), 7.58 (2H, d, J = 8.4 Hz), 8.22 (1H, d, J = 5.2 Hz), 9.02 (1H, d, J = 5.2 Hz), 9.31 (1H, s), 9.75 (1H, d, J = 8.4 Hz), 10.10 (1H, br s), 11.04 (1H, br s) (DMSO-d6)	501
YA1560	1.71(2H, m), 2.12(2H, m), 2.74(6H, d, J=4.8 Hz), 2.74-2.80(3H, m), 3.30-3.96(8H, m), 3.40(3H, s), 4.54(1H, m), 7.05(1H, s), 7.10(2H, d, J=9.0 Hz), 7.54(2H, d, J=9.0 Hz), 8.21(1H, dd, J=5.1, 1.2 Hz), 9.03(1H, d, J=5.4 Hz), 9.32(1H, s), 9.68(1H, m), 9.92(1H, m), 10.54(1H, m), (DMSO-d6)	475
YA1561	1.51(2H, m), 1.84(2H, m),3.00-3.20(3H, m), 3.38(3H, s), 3.38-3.91(8H, m), 4.55(1H, m), 7.05(1H, s), 7.18(2H, d, J=9.0 Hz), 7.51(2H, d, J=9.0 Hz), 8.21(1H, d, J=6.0 Hz), 9.02(1H, d, J=5.1 Hz), 9.31(1H, s), 9.54-9.62(3H, m), (DMSO-d6)	448

YA1562	1.89-2.05(2H, m), 2.65-3.20(5H, m), 3.25-3.82(5H, m), 3.41(3H, s), 4.39(1H, m), 4.91(1H, m), 6.49(2H, d, J= 8.4 Hz), 6.96(1H, s), 7.25(2H, d, J=8.4 Hz), 8.18(1H, dd, J=4.2, 0.9 Hz), 8.99(1H, d, J=5.1 Hz), 9.28(1H, s), (DMSO-d6)	434
YA1563	1.06 (1H, m), 1.30 (2H, m), 1.43 (2H, m), 1.60 (2H, m), 1.79 (3H, m), 2.97 (3H, m), 3.45 (3H, s), 3.60 (2H, m), 3.80 (3H, s), 3.90 (2H, m), 4.63 (1H, m), 7.05 (1H, s), 7.70 (4H, br s), 8.23 (1H, d, J = 5.2 Hz), 9.03 (1H, d, J = 5.2 Hz), 9.32 (1H, s), 9.75 (1H, br s) (DMSO-d6)	460
YA1564	2.99 (6H, m), 3.44 (1H, m), 3.45 (3H, s), 3.57 (3H, m), 3.82 (1H, d, J = 13.2 Hz), 4.92 (1H, d, J = 14.4 Hz), 4.55 (1H, t, J = 10.0 Hz), 7.05 (1H, s), 7.06 (2H, br s), 7.61 (2H, br s), 8.22 (1H, d, J = 5.2 Hz), 9.03 (1H, d, J = 5.2 Hz), 9.32 (1H, s), 9.73 (1H, br s), 10.11 (1H, br s) (DMSO-d6)	392
YA1565	3.20-3.22(4H, m), 3.44-3.89(15H, m), 4.51-4.55(1H, m), 5.11(2H, s), 7.04-7.07(3H, m), 7.35-7.39(5H, m), 7.53(2H, d, J=7.2Hz), 8.20(1H, d, J=4.2Hz), 9.01(1H, d, J=4.2Hz), 9.31(1H, s), 9.78-9.92(2H, br)(DMSO-d6)	567
YA1566	1.33(6H, d, J=6.8Hz), 3.02-3.55(13H, m), 3.89-3.93(5H, m), 4.52-4.55(1H, m), 6.99-7.13(3H, m), 7.60(2H, d, J=7.2Hz), 8.21(1H, d, J=4.2Hz), 9.02(1H, d, J=4.2Hz), 9.32(1H, s), 9.67-10.15(3H, br), 10.84-10.88(1H, br)(DMSO-d6)	475
YA1567	3.17-3.26(8H, m), 3.44-3.55(6H, m), 3.80-3.94(9H, m), 4.50-4.57(1H, m), 7.05-7.12(3H, m), 7.60(2H, d, J=7.2Hz), 8.21(1H, d, J=4.2Hz), 9.02(1H, d, J=4.2Hz), 9.32(1H, s), 9.77-9.80(1H, br), 10.16-10.20(1H, br), 10.49-10.52(1H, br)(DMSO-d6)	477
YA1568	3.18-3.24(3H, m), 3.40-3.59(13H, m), 4.02-4.06(2H, m), 4.51-4.55(1H, m), 7.03-7.11(3H, m), 7.52(2H, d, J=7.2Hz), 8.21(1H, d, J=4.2Hz), 9.02(1H, d, J=4.2Hz), 9.18-9.22(1H, br), 9.38(1H, s), 9.72-9.78(1H, br), 10.04-10.10(1H, br)(DMSO-d6)	433
YA1569	1.90-2.02(2H, m), 2.80-3.06(5H, m), 3.25-3.82(5H, m), 3.65(3H, s), 4.39(1H, m), 4.94(1H, m), 6.49(2H, d, J= 8.4 Hz), 6.96(1H, s), 7.25(2H, d, J=8.4 Hz), 8.16(1H, dd, J=5.4, 0.9 Hz), 8.99(1H, d, J=5.1 Hz), 9.29(1H, s) (DMSO-d6)	434
YA1570	1.15(6H, d, J= 6.3 Hz), 2.31(2H, dd, J= 11.1 Hz), 2.98-3.23(6H, m), 3.48-3.62(4H, m), 3.56(3H, s), 3.94(1H, dd, J= 10.2, 2.1 Hz), 6.94(2H, d, J= 8.7 Hz), 7.31(1H, s), 7.34(2H, d, J=8.7 Hz), 8.16(1H, dd, J=5.1, 1.2 Hz), 8.86(1H, d, J=5.1 Hz), 9.26(1H, s) (CDCl3)	461

YA1571	1.27(6H, d, J= 6.0 Hz), 2.43(2H, dd, J= 11.1, 11.1 Hz), 3.02(1H, dd, J=12.0, 10.5 Hz), 3.17-3.23(3H, m), 3.45-3.61(4H, m), 3.56(3H, s), 3.81(1H, m), 3.95(1H, m), 6.92(2H, d, J= 8.7 Hz), 7.32(1H, s), 7.35(2H, d, J=8.7 Hz), 8.17(1H, m), 8.86(1H, d, J=5.1 Hz), 9.26(1H, d, J=1.2 Hz) (CDCl3)	462
YA1572	3.27-3.32(8H, m), 3.47(3H, s), 3.82-3.86(2H, m), 4.36-4.39(1H, m), 7.02(1H, s), 7.72(2H, d, J=7.2Hz), 7.84(2H, d, J=7.2Hz), 7.96-8.04(4H, m), 8.22(1H, d, J=4.2Hz), 9.01(1H, d, J=4.2Hz), 9.30(1H, s)(DMSO-d6)	503
YA1573	2.93-3.10(5H, m), 3.46(3H, s), 3.69-3.71(1H, m), 4.01-4.04(1H, m), 6.99(1H, s), 7.63(2H, d, J=7.2Hz), 7.77(2H, d, J=7.2Hz), 7.88-7.95(4H, m), 8.18(1H, d, J=4.2Hz), 8.99(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	450
YA1574	3.08 (1H, dd, J =12.5, 10.4 Hz), 3.24 (3H, m), 3.59 (3H, s), 3.66 (2H, m), 4.09 (1H, dd, J = 10.4, 2.4 Hz), 7.29 (2H, d, J = 8.3 Hz), 7.33 (1H, s), 7.54 (2H, d, J = 8.3 Hz), 7.56 (2H, d, J = 8.3 Hz), 7.59 (2H, d, J = 8.3 Hz), 8.17 (1H, d, J = 4.9 Hz), 8.86 (1H, d, J = 4.9 Hz), 9.27 (1H, s) (CDCl3)	509
YA1575	3.08 (1H, dd, J = 12.4, 10.0 Hz), 3.25 (3H, m), 3.59 (3H, s), 3.67 (2H, m), 4.11 (1H, dd, J = 10.0, 2.0 Hz), 7.33 (1H, s), 7.57 (2H, d, J = 8.0 Hz), 7.63 (2H, d, J = 8.0 Hz), 7.71 (4H, s), 8.16 (1H, dd, J = 5.2, 1.2 Hz), 8.16 (1H, dd, J = 5.2, 1.2 Hz), 8.86 (1H, d, J = 5.2 Hz), 9.27 (1H, d, J = 1.2 Hz) (CDCl3)	493
YA1576	1.45 (3H, t, J = 7.0 Hz), 3.08 (1H, dd, J = 12.5, 10.6 Hz), 3.22 (3H, m), 3.58 (3H, s), 3.62 (2H, m), 4.05 (1H, m), 4.08 (2H,q, J = 7.0 Hz), 6.98 (2H, d, J = 8.0 Hz), 7.32 (1H, s), 7.49 (2H, d, J = 8.0 Hz), 7.52 (2H, d, J = 8.0 Hz), 7.58 (2H, d, J = 8.0 Hz), 8.17 (1H, d, J = 5.3 Hz), 8.86 (1H, d, J = 5.3 Hz), 9.27 (1H, s), (CDCl3)	469
YA1577	1.83 (4H, m), 1.99 (1H, m), 2.21 (1H, m), 2.61 (4H, m), 2.87 (1H, m), 3.03 (1H, dd, J = 12.0, 10.0 Hz), 3.20 (4H, m), 3.33 (1H, m), 3.42 (1H, m), 3.49 (1H, m), 3.56 (3H, s), 3.61 (2H, m), 3.90 (1H, dd, J = 10.0, 2.0 Hz), 6.55 (2H, d, J = 8.8 Hz), 7.29 (2H, d, J = 8.8 Hz), 7.30 (1H, s), 8.16 (1H, d, J = 5.2 Hz), 8.85 (1H, d, J = 5.2 Hz), 9.26 (1H, s) (CDCl3)	487
YA1578	3.09 (1H, dd, J = 12.4, 10.8 Hz), 3.20 (3H, m), 3.58 (3H, s), 3.64 (2H, m), 3.82 (3H, s), 3.86 (3H, s), 4.05 (1H, dd, J = 10.4, 2.8 Hz), 6.58 (2H, m), 7.24 (2H, m), 7.32 (1H, s), 7.47 (2H, d, J = 8.4 Hz), 7.53 (2H, d, J = 8.4 Hz), 8.17 (1H, dd, J = 5.2, 1.2 Hz), 8.86 (1H, d, J = 5.2 Hz), 9.27 (1H, d, J = 1.2 Hz) (CDCl3)	485

YA1579	3.08 (1H, dd, J = 12.5, 10.6 Hz), 3.23 (3H, m), 3.59 (3H, s), 3.66 (2H, m), 3.93 (3H, s), 3.96 (3H, s), 4.07 (1H, dd, J = 10.3, 2.2 Hz), 6.95 (1H, d, J = 8.3 Hz), 7.11 (1H, d, J = 2.0 Hz), 7.16 (1H, dd, J = 8.3, 2.0 Hz), 7.33 (1H, s), 7.52 (1H, d, J = 8.1 Hz), 7.59 (1H, d, J = 8.1 Hz), 8.17 (1H, dd, J = 5.3, 1.2 Hz), 8.85 (1H, d, J = 5.3 Hz), 9.27 (1H, d, J = 1.2 Hz) (CDCl3)	485
YA1580	3.07 (1H, dd, J = 12.4, 10.4 Hz), 3.23 (3H, m), 3.59 (3H, s), 3.65 (2H, m), 4.08 (1H, dd, J = 10.4, 2.0 Hz), 7.32 (1H, s), 7.41 (2H, d, J = 8.4 Hz), 7.52 (2H, d, J = 8.4 Hz), 7.53 (2H, d, J = 8.4 Hz), 7.58 (2H, d, J = 8.4 Hz), 8.16 (1H, d, J = 4.8 Hz), 8.86 (1H, d, J = 4.8 Hz), 9.27 (1H, s) (CDCl3)	459
YA1581	3.09 (1H, dd, J = 12.2, 11.0 Hz), 3.24 (3H, m), 3.59 (3H, s), 3.66 (2H, m), 4.10 (1H, dd, J = 10.4, 2.4 Hz), 7.29 (2H, m), 7.33 (1H, s), 7.44 (2H, d, J = 8.0 Hz), 7.52 (3H, m), 8.18 (1H, dd, J = 5.3, 1.0 Hz), 8.87 (1H, d, J = 5.3 Hz), 9.27 (1H, d, J = 1.0 Hz) (CDCl3)	493
YA1582	3.06 (1H, dd, J = 12.4, 10.4 Hz), 3.25 (3H, m), 3.58 (3H, s), 3.65 (2H, m), 4.09 (1H, dd, J = 10.0, 2.0 Hz), 7.33 (1H, s), 7.42 (1H, dd, J = 8.0, 2.0 Hz), 7.56 (5H, m), 7.68 (1H, d, J = 2.0 Hz), 8.16 (1H, dd, J = 5.2, 1.2 Hz), 8.85 (1H, d, J = 5.2 Hz), 9.27 (1H, d, J = 1.2 Hz) (CDCl3)	493
YA1583	3.06 (1H, dd, J = 12.3, 10.8 Hz), 3.23 (3H, m), 3.59 (3H, s), 3.65 (2H, m), 4.13 (1H, dd, J = 10.2, 2.2 Hz), 7.33 (1H, s), 8.14 (1H, d, J = 5.3 Hz), 8.15 (2H, d, J = 8.4 Hz), 8.78 (1H, s), 8.86 (1H, d, J = 5.3 Hz), 9.27 (1H, s) (CDCl3)	417
YA1584	1.37(6H, d, J= 6.0 Hz), 3.07(1H, dd, J=12.6, 10.8 Hz), 3.20-3.26(3H, m), 3.58(3H, s), 3.65-3.68(2H, m), 4.07(1H, m), 4.59(1H, m), 6.98(2H, d, J= 8.7 Hz), 7.48(1H, s), 7.50-7.61(6H, m), 8.17(1H, d, J=4.8 Hz), 8.86(1H, d, J=5.1 Hz), 9.26(1H, d, J=1.2 Hz) (CDCl3)	483
YA1585	0.99(3H, t, J= 7.5 Hz), 1.47-1.82(4H, m), 3.07(1H, dd, J=12.3, 10.5 Hz), 3.22-3.27(3H, m), 3.58(3H, s), 3.62-3.65(2H, m), 4.03(2H, t, J= 6.3 Hz), 4.04(1H, m), 6.98(2H, d, J= 8.7 Hz), 7.48(1H, s), 7.50-7.59(6H, m), 8.17(1H, dd, J=5.1, 1.2 Hz), 8.86(1H, d, J=5.1 Hz), 9.26(1H, d, J=1.2 Hz) (CDCl3)	497
YA1586	1.28(1H, br.s), 2.51(3H, s), 3.07(1H, dd, J=10.8, 12.6Hz), 3.21-3.28(3H, m), 3.58(3H, s), 3.64(2H, m), 4.08(1H, dd, J=2.5, 19.5Hz), 7.34(2H, d, J=7.8Hz), 7.45-7.67(7H, m), 8.17(1H, d, J=5.4Hz), 8.86(1H, d, J=5.1Hz), 9.27(1H, d, J=1.2Hz)(CDCl3)	470

YA1587	1.86(1H, br.s), 2.40(3H, s), 3.07(1H, dd, J=10.8, 12.6Hz), 3.20-3.27(2H, m), 3.58(3H, s), 3.62-3.68(3H, m), 4.06(1H, dd, J=2.5, 19.5Hz), 7.24-7.27(2H, m), 7.49-7.52(5H, m), 7.60(2H, d, J=8.2Hz), 8.17(1H, d, J=5.4Hz), 8.85(1H, d, J=5.2Hz), 9.27(1H, s)(CDCl3)	438
YA1588	1.29(6H, s), 1.85(1H, br.s), 2.94-2.96(1H, m), 3.08(1H, dd, J=10.8, 12.6Hz), 3.21-3.27(3H, m), 3.59(3H, s), 3.65(2H, m), 4.07(1H, dd, J=2.5, 19.5Hz), 7.28-7.62(9H, m), 8.17(1H, dd, J=1.2, 5.7Hz), 8.86(1H, d, J=5.1Hz), 9.27(1H, d, J=1.2Hz)(CDCl3)	466
YA1589	1.72(1H, br.s), 3.10(1H, m), 3.21-3.24(3H, m), 3.58(3H, s), 3.58-3.73(4H, m), 4.09(1H, dd, J=2.5, 19.5Hz), 6.75(2H, dd, J=2.1, 6.6Hz), 7.23-7.57(7H, m), 8.16(1H, d, J=5.4Hz), 8.86(1H, d, J=5.1Hz), 9.27(1H, d, J=1.2Hz)(CDCl3)	439
YA1590	2.79 (1H, dd, J = 10.5, 12.6 Hz), 3.20-3.40 (3H, m), 3.50-3.80 (5H, m), 4.45 (1H, dd, J = 3.0, 10.2 Hz), 7.10-7.20 (1H, m), 7.30-7.40 (2H, m), 7.58 (1H, dd, J = 0.9, 7.8 Hz), 7.73 (1H, dd, J = 1.5, 7.8 Hz), 8.19 (1H, dd, J = 0.9, 4.8 Hz), 8.85 (1H, d, J = 5.1 Hz), 9.26 (1H, d, J = 0.9 Hz) (CDCl3)	427
YB013	1.31-1.46(1H, m), 1.60-1.96(3H, m), 2.17-2.30(1H, m), 2.89-3.02(2H, m), 3.41(3H, s), 3.61(1H, d, J=12.4 Hz), 3.80(1H, d, J=13.5 Hz), 3.90-4.01(2H, m), 6.89-7.01(3H, m), 6.96(1H, s), 7.27-7.32(2H, m), 8.18(1H, d, J=4.4 Hz), 8.96(1H, d, J=5.0 Hz), 9.28(1H, s)(DMSO-d6)	378
YB014	1.33-1.49(1H, m), 1.60-1.93(3H, m), 2.20-2.32(1H, m), 2.89-3.04(2H, m), 3.41(3H, s), 3.63(1H, d, J=13.3 Hz), 3.82(1H, d, J=11.1 Hz), 4.22-4.37(2H, m), 6.95(1H, s), 7.51-7.56(2H, m), 7.65-7.70(1H, m), 8.00-8.03(2H, m), 8.17(1H, dd, J=1.1, 5.1 Hz), 8.87(1H, d, J=5.1 Hz), 9.28(1H, d, J=1.0 Hz)(DMSO-d6)	406
YB048	(CDCl3): 1.93-2.07(3H, m), 2.38(1H, m), 3.09(1H, m), 3.46(1H, m), 3.57(3H, s), 3.61-3.70(2H, m), 4.05(1H, m), 7.26-7.34(2H, m), 7.59-7.61(2H, m), 7.76(1H, m), 8.16(1H, m), 8.83(1H, m), 9.27(1H, s).	389
YB049	(CDCl3): 1.92-2.08(3H, m), 2.36(1H, m), 3.11(1H, m), 3.44(1H, dd, J=12.9, 10.8Hz), 3.58(3H, s), 3.61-3.70(2H, m), 4.06(1H, m), 7.11(1H, m), 7.28-7.33(2H, m), 7.70(1H, dd, J=8.7, 4.8Hz), 8.15(1H, m), 8.86(1H, d, J=5.4Hz), 9.28(1H, s).	407
YB050	1.93-2.11(3H, m), 2.33-2.45(1H, m), 3.08-3.16(1H, m), 3.46(1H, dd, J=11.4, 12.9 Hz), 3.59(3H, s), 3.62-3.71(2H, m), 4.06(1H, d, J=12.6 Hz), 7.32-7.37(1H, m), 7.32(1H, s), 7.57-7.64(2H, m), 7.75(1H, d, J=8.1 Hz), 8.16(1H, dd, J=1.2, 5.4 Hz), 8.84(1H, d, J=4.8 Hz), 9.28(1H, d, J=0.9 Hz)(CDCl3)	389

YB051	1.91-2.11(3H, m), 2.35-2.43(1H, m), 3.08-3.16(1H, m), 3.42-3.50(1H, m), 3.59(3H, s), 3.62-3.71(2H, m), 4.05(1H, d, J=11.1 Hz), 7.32(1H, s), 7.33-7.37(1H, m), 7.57-7.65(2H, m), 7.75(1H, d, J=7.8 Hz), 8.16(1H, d, J=5.7 Hz), 8.84(1H, d, J=5.4 Hz), 9.28(1H, d, J=1.2 Hz)(CDCl3)	389
YB130	1.78-1.96(4H, m), 2.73-2.90(1H, m), 3.02-3.09(2H, m), 3.46(3H, s), 3.84(2H, d, J=12.6 Hz), 6.98(1H, s), 7.11-7.17(2H, m), 7.33-7.38(2H, m), 8.25(1H, d, J=5.1 Hz), 9.01(1H, d, J=4.8 Hz), 9.30(1H, s)(DMSO-d6)	366
YB157	1.90-2.05(2H,m), 2.18-2.35(2H,m), 2.92-3.09(1H,m), 3.10-3.23(2H,m), 3.58(3H,s), 3.72-3.83(2H,m), 6.95-7.07(1H,m), 7.22(1H,dd,J=2.2,9.0Hz), 7.34(1H,s), 7.46(1H,s), 7.48-7.55(1H,m), 8.20(1H,d,J=5.3Hz), 8.88(1H,d,J=5.2Hz), 9.29(1H,s)(CDCl3)	406
YB158	1.91-2.04(2H, m), 2.23(2H, d, J=8.9Hz), 2.44(3H, s), 2.97-3.11(1H, m), 3.16(2H, dd, J=11.1, 12.4Hz), 3.58(3H, s), 3.77(2H, d, J=13.0Hz), 7.12(1H, d, J=8.5Hz), 7.36-7.41(4H, m), 8.20(1H, d, J=5.3Hz), 8.87(1H, d, J=4.8Hz), 9.28(1H, s) (CDCl3)	402
YB159	1.93-2.05(2H, m), 2.23(2H, d, J=12.6Hz), 3.19(3H, m), 3.58(3H, s), 3.81(2H, d, J=13.2Hz), 7.12-7.16(1H, m), 7.26(1H, s), 7.34(1H, s), 7.56(1H, dd, J=2.4, 8.7Hz), 7.77-7.76(1H, m), 8.20(1H, dd, J=1.2, 5.1Hz), 8.87(1H, d, J=5.1Hz), 9.29(1H, s) (CDCl3)	422
YB160	2.01-2.22(5H, m), 3.20(2H, dd, J=1.4, 11.7Hz), 3.47(3H, s), 3.84(2H, d, J=13.2Hz), 6.99(1H, s), 7.32(1H, m), 7.72(1H, dd, J=2.1, 9.0Hz), 8.09(1H, dd, J=2.7, 9.1Hz), 8.27(1H, m), 9.01(1H, d, J=5.1Hz), 9.31(1H, d, J=1.5Hz) (DMSO-d6)	407
YB162	2.13-2.43(4H,m), 3.10-3.38(3H,m), 3.57(3H,s), 3.65-3.83(2H,m), 7.30-7.40(3H,m), 7.45-7.59(1H,m), 7.62-7.80(1H,m), 8.10-8.22(1H,m), 8.88(1H,d,J=5.1Hz), 9.28(1H,s)(CDCl3)	389
YB193	2.22-2.39(4H, m), 3.21-3.35(2H, m), 3.48(3H, s), 3.90(2H, d, J=13.5 Hz), 7.03(1H, s), 7.38-7.43(1H, m), 7.46-7.51(2H, m), 7.59-7.66(2H, m), 8.28(1H, d, J=5.0 Hz), 9.01(1H, d, J=5.0 Hz), 9.30(1H, s)(DMSO-d6)	373
YB251	2.01-2.22(5H, m), 3.20(2H, dd, J=11.4, 11.7Hz), 3.47(3H, s), 3.82(2H, d, J=13.2Hz), 7.32(1H, m), 6.70(1H, s), 7.72(1H, dd, J=2.1, 9.0Hz), 8.09(1H, dd, J=2.7, 9.1Hz), 8.27(1H, m), 9.01(1H, d, J=5.1Hz), 9.31(1H, d, J=1.5Hz)(DMSO-d6)	406

YB252	1.64(2H, m), 2.23(2H, d, J=8.9Hz), 2.44(3H, s), 2.97-3.11(1H, m), 3.16(2H, dd, J=11.1, 11.4Hz), 3.58(3H, s), 3.77(2H, d, J=13.0Hz) 7.12(1H, d, J=8.5Hz), 7.36-7.41(4H, m), 8.20(1H, d, J=5.3Hz), 8.87(1H, d, J=4.8Hz), 9.28(1H, s)(CDCl3)	401
YB253	1.93-2.05(2H, m), 2.23(2H, d, J=12.6Hz), 3.19(3H, m), 3.58(3H, s), 3.81(2H, d, J=13.2Hz), 7.12-7.16(1H, m), 7.26(1H, s) 7.34(1H, s), 7.56(1H, dd, J=2.4, 8.7Hz), 7.11-7.76(1H, m), 8.20(1H, dd, J=1.2, 5.1Hz), 8.87(1H, d, J=5.1Hz), 9.29(1H, s)(CDCl3)	421
YB254	1.72-1.94(8H, m), 2.52(4H, m), 2.97-3.05(3H, m), 3.56(3H, s), 3.61(2H, s), 3.67-3.73(2H, m), 7.21-7.34(4H, m), 8.17(1H, d, J=5.4 Hz), 8.86(1H, d, J=5.1 Hz), 9.27(1H, s) (CDCl3)	431
YB255	1.78 (1H, m), 1.89 (3H, m), 1.96 (3H, m), 2.13 (1H, d, J = 13.6 Hz), 3.46 (2H, m), 3.56 (3H, s), 3.66 (2H, t, J = 6.8 Hz), 3.73 (2H, m), 7.30 (2H, d, J = 8.0 Hz), 7.31 (1H, s), 7.52 (2H, d, J = 5.2 Hz), 8.15 (1H, d, J = 5.2 Hz), 8.86 (1H, d, J = 5.2 Hz), 9.27 (1H, s)	444
YB256	1.46-1.73(9H, m), 2.01(2H, d, J=12.1Hz), 2.56(4H, t, J=5.0Hz), 2.94(2H, td, J=1.3, 12.7Hz), 3.52(3H, s), 3.70(2H, d, J=13.8Hz), 7.27(1H, s), 8.18(1H, dd, J=1.3, 5.3Hz), 8.86(1H, d, J=5.3Hz), 9.27(1H, d, J=1.3Hz)(CDCl3)	354
YB257	1.81-1.88(4H, m), 2.80(1H, m), 2.99-3.08(2H, m), 3.46(3H, s), 3.82-3.86(2H, m), 6.98(1H, s), 7.26-7.43(3H, m), 7.53(1H, s), 8.26(1H, d, J=4.8Hz), 9.01(1H, d, J=4.8 Hz), 9.30(1H, s) (DMSO-d6)	425
YB258	1.80-1.90(4H, m), 2.83(1H, m), 2.99-3.08(2H, m), 3.46(3H, s), 3.81-3.86(2H, m), 6.98(1H, s), 7.26-7.43(3H, m), 7.53(1H, s), 8.26(1H, d, J=4.8Hz), 9.01(1H, d, J=4.8 Hz), 9.30(1H, s) (DMSO-d6)	425
YB259	1.76-1.96(8H, m), 2.67(1H, m), 2.99-3.07(2H, m), 3.16-3.21(4H, m), 3.45(3H, s), 3.79-3.84(2H, m), 6.49(2H, d, J=8.4 Hz) 6.97(1H, s), 7.09(2H, d, J=8.4 Hz), 8.24(1H, d, J=5.1Hz), 9.01(1H, d, J=5.1 Hz), 9.30(1H, s) (DMSO-d6)	417
YB260	1.87-1.99(8H, m), 2.72(1H, m), 2.99-3.09(2H, m), 3.19-3.23(4H, m), 3.46(3H, s), 3.80-3.85(2H, m), 6.38(1H, d, J=7.8 Hz) 6.44(1H, s), 6.53(1H, d, J=7.8 Hz), 6.98(1H, s), 7.09(1H, dd, J=7.8, 7.8Hz), 8.25(1H, d, J=5.1Hz), 9.01(1H, d, J=5.1Hz), 9.30(1H, s) (DMSO-d6)	417
YB261	1.48-1.58(2H, m), 2.00-2.07(2H, m), 2.71(6H, s), 3.07-3.14(2H, m), 3.34-3.36(1H, m), 3.48(3H, s), 3.69-3.73(2H, m), 4.87(1H, d, J=8.2Hz), 6.56-6.66(4H, m), 6.96(1H, s), 8.24(1H, d, J=4.2Hz), 9.00(1H, d, J=4.2Hz), 9.30(1H, s)(DMSO-d6)	406

YB262	1.51-1.62(2H, m), 2.02-2.08(2H, m), 3.10-3.18(2H, m), 3.42(3H, s), 3.46-3.50(1H, m), 3.67(3H, s), 3.69-3.73(2H, m), 5.56(1H, d, J=8.2Hz), 6.10-6.24(3H, m), 6.94-6.99(2H, m), 8.24(1H, d, J=4.2Hz), 9.00(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	393
YB263	1.48-1.58(2H, m), 2.01-2.08(2H, m), 3.08-3.17(2H, m), 3.40(3H, s), 3.41-3.43(1H, m), 3.63(3H, s), 3.69-3.73(2H, m), 5.09(1H, d, J=8.2Hz), 6.59(2H, d, J=7.2Hz), 6.72(2H, d, J=7.2Hz), 6.96(1H, s), 8.24(1H, d, J=4.2Hz), 9.01(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	393
YB264	1.58-1.69(2H, m), 2.04-2.08(2H, m), 3.08-3.15(2H, m), 3.42(3H, s), 3.55-3.83(6H, m), 4.57(1H, d, J=8.2Hz), 6.53-6.90(4H, m), 7.03(1H, s), 8.25(1H, d, J=4.2Hz), 9.00(1H, d, J=4.2Hz), 9.30(1H, s)(DMSO-d6)	393
YB265	1.66-1.87(3H, m), 1.91-1.99(1H, m), 2.93-3.08(3H, m), 3.43(3H, s), 3.72-3.78(2H, m), 6.97(1H, s), 7.34(2H, d, J=5.7 Hz), 7.54(2H, d, J=5.4 Hz), 8.18(1H, dd, J=5.4, 1.2 Hz), 8.99(1H, d, J=5.1 Hz), 9.29(1H, d, J=0.9 Hz)(DMSO)	426
YB266	1.71-1.91(4H, m), 2.41-2.45(2H, m), 2.53-2.56(4H, m), 2.93-3.00(3H, m), 3.08-3.10(4H, m), 3.43(3H, s), 3.50-3.54(2H, m), 3.67-3.71(2H, m), 4.42-4.46(1H, m), 6.90(2H, d, J=7.2Hz), 6.96(1H, s), 7.19(2H, d, J=7.2Hz), 8.17(1H, dd, J=1.2, 4.2Hz), 8.99(1H, d, J=4.2Hz), 9.29(1H, d, J=1.2Hz)(DMSO-d6)	476
YB267	1.70-1.94(4H, m), 2.86(6H, s), 2.89-2.90(3H, m), 3.43(3H, s), 3.66-3.77(2H, m), 6.71(2H, d, J=7.2Hz), 6.96(1H, s), 7.15(2H, d, J=7.2Hz), 8.17(1H, d, J=4.2Hz), 8.99(1H, d, J=4.2Hz), 9.28(1H, s)(DMSO-d6)	391
YB268	1.72-1.84(4H, m), 2.89-3.08(7H, m), 3.43(3H, s), 3.67-3.77(6H, m), 6.90-6.96(3H, m), 7.21(2H, d, J=7.2Hz), 8.17(1H, d, J=4.2Hz), 8.99(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	433
YB269	1.51-1.83(10H, m), 2.87-3.00(3H, m), 3.07-3.10(4H, m), 3.43(3H, s), 3/68-3.77(2H, m), 6.89(2H, d, J=7.2Hz), 6.96(1H, s), 7.17(2H, d, J=7.2Hz), 8.18(1H, d, J=4.2Hz), 8.99(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	431
YB270	1.72-1.90(4H, m), 2.21(3H, s), 2.42-2.45(4H, m), 2.87-2.97(3H, m), 3.08-3.10(4H, m),.3.43(3H, s), 3.67-3.77(2H, m), 6.90(2H, d, J=7.2Hz), 6.96(1H, s), 7.19(2H, d, J=7.2Hz), 8.17(1H, d, J=4.2Hz), 8.98(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	446
YB271	1.63-1.95(6H, m), 2.04-2.08(2H, m), 2.61-2.65(2H, m), 2.69(6H, s), 2.86-3.00(3H, m), 3.13-3.16(1H, m), 3.43(3H, s), 3.67-3.81(4H, m), 6.92-6.96(3H, m), 7.20(2H, d, J=7.2Hz), 8.17(1H, d, J=4.2Hz), 9.00(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	474

YB272	1.72-1.83(4H, m), 2.89-3.09(7H, m), 3.42(3H, s), 3.54-3.57(4H, m), 3.67-3.77(2H, m), 5.11(2H, s), 6.91-6.96(3H, m), 7.21(2H, d, J=7.2Hz), 7.26-7.44(5H, m), 8.17(1H, d, J=4.2Hz), 8.99(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	566
YB273	1.57-1.63(2H, m), 1.82-1.89(2H, m), 2.51-2.98(13H, m), 3.41(3H, s), 3.76-3.80(3H, m), 6.70(1H, s), 8.22(1H, d, J=4.2Hz), 9.01(1H, d, J=4.2Hz), 9.30(1H, s)(DMSO-d6)	370
YB274	1.52-1.63(2H, m), 1.84-1.90(2H, m), 2.36-2.42(11H, m), 2.86-2.94(2H, m), 3.40(3H, s), 3.49-3.53(2H, m), 3.73-3.77(2H, m), 4.40-4.43(1H, m), 6.96(1H, s), 8.22(1H, d, J=4.2Hz), 9.01(1H, d, J=4.2Hz), 9.30(1H, s)(DMSO-d6)	400
YB275	1.72-1.92(4H, m), 2.80-3.02(11H, m), 3.28-3.30(1H, m), 3.43(3H, s), 6.88(2H, d, J=7.2Hz), 6.96(1H, s), 7.18(2H, d, J=7.2Hz), 8.18(1H, d, J=4.2Hz), 8.99(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	432
YB276	1.06-1.38(5H, m), 1.61-1.92(9H, m), 2.77-2.91(3H, m), 3.03-3.12(1H, m), 3.42(3H, s), 3.64-3.75(2H, m), 5.27(1H, d, J=8.2Hz), 6.52(2H, d, J=7.2Hz), 6.96(1H, s), 7.02(2H, d, J=7.2Hz), 8.17(1H, d, J=4.2Hz), 8.99(1H, d, J=4.2Hz), 9.28(1H, s)(DMSO-d6)	445
YB277	1.76-1.97(4H, m), 2.97-3.10(5H, m), 3.47(3H, s), 3.73-3.76(2H, m), 3.88-3.93(2H, m), 6.71(1H, dd, J=7.2, 7.3Hz), 6.96-7.34(8H, m), 8.19(1H, d, J=4.2Hz), 9.00(1H, d, J=4.2Hz), 9.29(1H, s)(DMSO-d6)	465
YB278	1.10-1.15(1H, m), 1.32-1.47(4H, m), 1.64-1.82(9H, m), 2.69(3H, s), 2.82-2.97(3H, m), 3.42(3H, s), 3.54-3.75(3H, m), 6.73(2H, d, J=7.2Hz), 6.95(1H, s), 7.13(2H, d, J=7.2Hz), 8.16(1H, d, J=4.2Hz), 8.98(1H, d, J=4.2Hz), 9.28(1H, s)(DMSO-d6)	459

Test Example: Inhibitory activity of the medicament of the present invention against P-GS1 phosphorylation by bovine cerebral TPK1

A mixture containing 100 mM MES-sodium hydroxide (pH 6.5), 1 mM magnesium acetate, 0.5 mM EGTA, 5 mM β-mercaptoethanol, 0.02% Tween 20, 10% glycerol, 12 μg/ml P-GS1, 41.7 μM [γ-^{32}P] ATP (68 kBq/ml), bovine cerebral TPK1 and a compound shown in Table (a final mixture contained 1.7% DMSO deriving from a solution of a test compound prepared in the presence of 10% DMSO) was used as a reaction system. The phosphorylation was started by adding ATP, and the

reaction was conducted at 25°C for 2 hours, and then stopped by adding 21% perchloric acid on ice cooling. The reaction mixture was centrifuged at 12,000 rpm for 5 minutes and adsorbed on P81 paper (Whatmann), and then the paper was washed four times with 75 mM phosphoric acid, three times with water and once with acetone. The paper was dried, and the residual radioactivity was measured using a liquid scintillation counter. The results are shown in the table below. The test compound markedly inhibited the P-GS1 phosphorylation by TPK1. The results strongly suggest that the medicaments of the present invention inhibit the TPK1 activity, thereby suppress the Aβ neurotoxicity and the PHF formation, and that the medicaments of the present invention are effective for preventive and/or therapeutic treatment of Alzheimer disease and the above-mentioned diseases.

Table 6

Compound No.	IC_{50}
XA361	0.018 μM
XB80	0.23 μM
YA0864	0.216 μM
YB257	0.014 μM

Formulation Example

(1) Tablets

The ingredients below were mixed by an ordinary method and compressed by using a conventional apparatus.

Compound of Example 1	30 mg
Crystalline cellulose	60 mg
Corn starch	100 mg
Lactose	200 mg
Magnesium stearate	4 mg

(2) Soft capsules

The ingredients below were mixed by an ordinary method and filled in soft capsules.

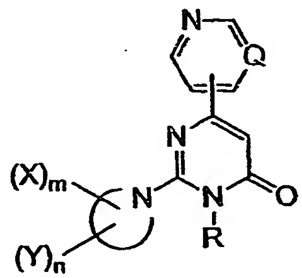
Compound of Example 1	30 mg
Olive oil	300 mg
Lecithin	20 mg

Industrial Applicability

The compounds of the present invention have TPK1 inhibitory activity and are useful as an active ingredient of a medicament for preventive and/or therapeutic treatment of diseases caused by abnormal advance of TPK1 such as neurodegenerative diseases (e.g. Alzheimer disease) and the above-mentioned diseases.

CLAIMS

1. A pyrimidone derivative represented by formula (I) or a salt thereof, or a solvate thereof or a hydrate thereof:



(I)

wherein Q represents CH or nitrogen atom;

R represents a C_1-C_{12} alkyl group which may be substituted;

the ring of:

represents piperazine ring or piperidine ring;

each X independently represents

$X^1 - X^2 -$

wherein X^1 represents an oxo group; a C_1-C_8 alkyl group which may be substituted; a C_3-C_8 cycloalkyl group which may be substituted; an optionally partially hydrogenated C_6-C_{10} aryl ring which may be substituted; an indan ring which may be substituted; an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total; an aralkyloxy group; a group represented by $-N(Ra)(Rb)$ wherein Ra and Rb are the same or different and each is hydrogen, a C_1-C_4 alkyl group which may be substituted, an aralkyl group which may be substituted, a C_3-C_8 cycloalkyl group which may be substituted, an

aryl group which may be substituted, C_1-C_8 alkylcarbonyl group which may be substituted,

C_3-C_8 cycloalkylcarbonyl group which may be substituted,

aralkycarbonyl group which may be substituted,

C_6-C_{10} arylcarbonyl group which may be substituted,

C_1-C_8 alkysulfonyl group which may be substituted,

C_3-C_8 cycloalkylsulfonyl group which may be substituted,

aralkysulfonyl group which may be substituted,

C_6-C_{10} arylsulfonyl group which may be substituted,

C_1-C_8 alkyloxycarbonyl group which may be substituted,

C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,

aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

aralkylaminocarbonyl group which may be substituted,

N,N'-diaralkylaminocarbonyl group which may be substituted,

N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_6-C_{10} arylaminocarbonyl group which may be substituted,

N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,

or an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total; or Ra and Rb together with the adjacent nitrogen atom form a 4 to 7 membered heterocyclic ring which may further contain 1 to 4 groups selected from an oxygen atom, a sulfur atom, N-Rc (wherein Rc represents a hydrogen atom, a C_1-C_4 alkyl group which may be substituted, an aralkyl group which may be substituted, C_3-C_8 cycloalkyl group which may be substituted or an aryl group which may be substituted,

C_1-C_8 alkylcarbonyl group which may be substituted,

C_3-C_8 cycloalkylcarbonyl group which may be substituted,

aralkycarbonyl group which may be substituted,

C_6-C_{10} arylcarbonyl group which may be substituted,

C_1-C_8 alkysulfonyl group which may be substituted,

C_3-C_8 cycloalkylsulfonyl group which may be substituted,

aralkysulfonyl group which may be substituted,

C_6-C_{10} arylsulfonyl group which may be substituted,

C_1-C_8 alkyloxycarbonyl group which may be substituted,

C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,

aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,
N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,
aralkylaminocarbonyl group which may be substituted,
N,N'-diaralkylaminocarbonyl group which may be substituted,
N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,
C_6-C_{10} arylaminocarbonyl group which may be substituted,
N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,
or an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total),

a carbonyl group, a sulfinyl group or a sulfonyl group in the ring, and said 4 to 7 membered heterocyclic ring may optionally be fused with an aryl group which may be substituted;

X^2 represents a bond, a carbonyl group, a sulfinyl group, a sulfonyl group, an oxygen atom, a sulfur atom, a C_1-C_4 alkylene group which may be substituted or N-Rd (Rd represents a hydrogen atom, a C_1-C_4 alkyl group which may be substituted, an aralkyl group which may be substituted, C_3-C_8 cycloalkyl group which may be substituted or an aryl group which may be substituted,
C_1-C_8 alkylcarbonyl group which may be substituted,
C_3-C_8 cycloalkylcarbonyl group which may be substituted,
aralkycarbonyl group which may be substituted,
C_6-C_{10} arylcarbonyl group which may be substituted,
C_1-C_8 alkysulfonyl group which may be substituted,
C_3-C_8 cycloalkylsulfonyl group which may be substituted,
aralkysulfonyl group which may be substituted,
C_6-C_{10} arylsulfonyl group which may be substituted,

C_1-C_8 alkyloxycarbonyl group which may be substituted,

C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,

aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

aralkylaminocarbonyl group which may be substituted,

N,N'-diaralkylaminocarbonyl group which may be substituted,

N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_6-C_{10} arylaminocarbonyl group which may be substituted,

N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,

or an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total);

m represents an integer of 1 to 3;

each Y independently represents a halogen atom, a hydroxy group, a cyano group, Y^1-Y^3- wherein Y^1 represents a C_1-C_8 alkyl group which may be substituted; a C_3-C_8 cycloalkyl group which may be substituted or a C_6-C_{10} aryl ring which may be substituted; Y^3 represents a carbonyl group, a sulfinyl group, a sulfonyl group, an oxygen atom, a sulfur atom, a C_1-C_4 alkylene group which may be substituted or

N-Re (Re represents a hydrogen atom, a C_1-C_4 alkyl group which may be substituted, an aralkyl group which may be substituted, C_3-C_8 cycloalkyl group which may be substituted or an aryl group which may be substituted,

C_1-C_8 alkylcarbonyl group which may be substituted,

C_3-C_8 cycloalkylcarbonyl group which may be substituted,

aralkycarbonyl group which may be substituted,

C_6-C_{10} arylcarbonyl group which may be substituted,

C_1-C_8 alkysulfonyl group which may be substituted,

C_3-C_8 cycloalkylsulfonyl group which may be substituted,

aralkysulfonyl group which may be substituted,

C_6-C_{10} arylsulfonyl group which may be substituted,

C_1-C_8 alkyloxycarbonyl group which may be substituted,

C_3-C_8 cycloalkyloxycarbonyl group which may be substituted,

aralkyoxycarbonyl group which may be substituted,

C_6-C_{10} aryloxycarbonyl group which may be substituted,

aminocarbonyl,

N-C_1-C_8 alkylaminocarbonyl group which may be substituted,

N, N'-C_1-C_8 dialkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_1-C_8 alkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_3-C_8 cycloalkylaminocarbonyl group which may be substituted,

N,N'-C_3-C_8 dicycloalkylaminoycarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-aralkylaminocarbonyl group which may be substituted,

N-C_3-C_8 cycloalkyl-N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

aralkylaminocarbonyl group which may be substituted,

N,N'-diaralkylaminocarbonyl group which may be substituted,

N-aralkyl- N'-C_6-C_{10} arylaminocarbonyl group which may be substituted,

C_6-C_{10} arylaminocarbonyl group which may be substituted,

N,N'-C_6-C_{10} diarylaminocarbonyl group which may be substituted,

or an optionally substituted heterocyclic ring having 1 to 4 hetero atoms selected from the group consisting of oxygen atom, sulfur atom, and nitrogen atom, and having 5 to 10 ring-constituting atoms in total),

n represents an integer of 0 to 8;

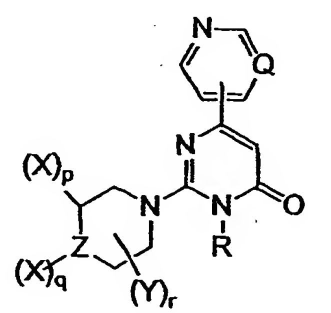
when X and Y or two Y groups are attached on the same carbon atom, they may combine to each other to form a C_2-C_6 alkylene group;

and when m is 1, n is 0, and X is X^1-CO-,

(1) X does not bind to 3-position of unsubstituted 1-piperazinyl group or does not bind to 3-position of a 4-alkyl-1-piperazinyl group; or

(2) X does not bind to 3-position or 4-position of non-substituted 1-piperidinyl group.

2. The pyrimidone derivative or the salt thereof, or the solvate thereof or the hydrate thereof according to claim 1 having the following formula(II)



(II)

wherein Q, R, X and Y are the same as those defined in claim 1;

p is 0 or 1; q is 0 or 1; r is an integer of 0 to 6; p+q is 1 or 2;

and Z represents N or CZ^1 wherein Z^1 represents hydrogen atom or Y.

3. The pyrimidone derivative or the salt thereof, or the solvate thereof or the hydrate thereof according to claim 2, wherein R is a C_1-C_3 alkyl group which

may be substituted by a C_3-C_8 cycloalkyl group.

4. The pyrimidone derivative or the salt thereof, or the solvate thereof or the hydrate thereof according to claim 3, wherein R is methyl group or ethyl group; Y is in 3-, 4- or 5-position of the piperazine ring or the piperidine ring; p+q is 1; and r is an integer of 0 to 3.

5. The pyrimidone derivative or the salt thereof, or the solvate thereof or the hydrate thereof according to claim 4, wherein X is a C_1-C_8 alkyl group which may be substituted or a C_6-C_{10} aryl ring which may be substituted; Y is a C_1-C_6 alkyl group which may be substituted; p is 1; q is 0; r is an integer of 0 to 3; and Z is N or CH.

6. The pyrimidone derivative or the salt thereof, or the solvate thereof or the hydrate thereof according to claim 5, wherein X is a benzene ring which may be substituted, a benzyl group which may be substituted; Y is a methyl group which may be substituted; Z is N and r is 0 or 1.

7. The pyrimidone derivative or the salt thereof, or the solvate thereof or the hydrate thereof according to claim 4, wherein X is a benzene ring which may be substituted, a benzyl group which may be substituted, a benzoyl group which may be substituted, or a benzisothiazol ring which may be substituted; Y is a methyl group which may be substituted; Z is N and p is 0.

8. The pyrimidone derivative or the salt thereof, or the solvate thereof or the hydrate thereof according to claim 4, wherein X is a C_1-C_8 alkyl group substituted by a benzene ring which may be substituted or a benzene ring which may be substituted; Y is a hydroxy group, a cyano group, or Y^1-CO- wherein Y^1 is a C_1-C_8 alkyl group; Z is CH or C-Y and r is 0 or 1.

9. The pyrimidone derivative or the salt thereof, or the solvate thereof or the hydrate thereof according to claim 8, wherein X is a benzyl group which may be substituted or a benzene ring which may be substituted; Y is a hydroxy group, a cyano group, or an acetyl group; Z is CH or C-Y and r is 0 or 1.

10. A pyrimidone derivative which is selected from the group consisting of:

2-(3-Phenylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Methylphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Methylphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Methylphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Ethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(5-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-3-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-

pyrimidin-4-one;

2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chloro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-2-methylphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Fluoro-6-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(5-Bromo-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Bromo-4-fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Chloro-6-fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Difluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,6-Difluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,6-Dichlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3,4-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-

4-one;

2-(3-(2,5-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,6-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Difluoro-6-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;(1034)

2-(3-(5-Cyano-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Cyano-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(1-Naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,3-Dihydrobenzofuran-7-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(Benzofuran-2-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(Benzofuran-2-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Pyrrolidin-1-yl-methyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-methoxy-4-(pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-methoxy-5-(pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Phenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(4-Fluorophenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-

pyrimidin-4-one;

2-(3-(4-(4-Methoxyphenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(2-Methoxyphenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Morpholin-4-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(4-Methylpiperazin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Phenylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Benzylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Benzoylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-(1,2-Benzisothiazol-3-yl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Methyl-3-phenylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-2-methoxyphenyl)-4-methylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-Fluoro-2-methoxyphenyl)-4-methylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-Fluoro-2-methoxyphenyl)-4-methylpiperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Acetyl-3-(4-fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Benzyl-3-(4-fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-Benzyl-3-(ethoxycarbonyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(4-methyl-3-(1-naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-

one;

2-(5,5-Dimethyl-3-(2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-Phenylpiperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluorophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Fluorophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Fluorophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chlorophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Bromophenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Methoxyphenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Methoxyphenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Methoxyphenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(4-((Pyrrolidin-1-yl)methyl)phenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-(Pyrrolidin-1-yl-methyl)phenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-(Pyrrolidin-1-yl-methyl)phenyl)piperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-Hydroxy-3-phenylpiperidin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-Phenylpiperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Fluorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Chlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-

one;

2-(3-(4-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Bromophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Cyanophenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(3-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Ethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(6-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(5-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

(*S*)-2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

(*R*)-2-(3-(4-Fluoro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-Chloro-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(5-Bromo-2-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-

pyrimidin-4-one;

2-(3-(2,6-Dichlorophenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyridyl)-3*H*-pyrimidin-4-one;

2-(3-(3,4-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2,5-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2,6-Dimethoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2,4-Difluoro-6-methoxyphenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(1-Naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-Naphthyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2,3-Dihydrobenzofuran-7-yl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(Benzofuran-2-yl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Pyrrolidin-1-yl-methyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-methoxy-4-(pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(2-methoxy-5-(pyrrolidin-1-yl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(4-(Phenyl)phenyl)piperazin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-

pyrimidin-4-one;

(*R*)-2-(3-(Benzoisoxazol-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(3-(6-Fluorobenzoisoxazol-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(4-(6-Fluorobenzoisoxazol-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one;

2-(4-(5-Methylbenzofuran-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one; and

2-(4-(6-Fluorobenzothiophene-3-yl)piperidin-1-yl)-3-methyl-6-(4-pyrimidyl)-3*H*-pyrimidin-4-one

or a salt thereof, or a solvate thereof or a hydrate thereof.

11. A medicament comprising as an active ingredient a substance selected from the group consisting of the pyrimidone derivative represented by formula (I) and a salt thereof, and a solvate thereof and a hydrate thereof according to claim 1.

12. A tau protein kinase 1 inhibitor selected from the group consisting of the pyrimidone derivative represented by formula (I) and a salt thereof, and a solvate thereof and a hydrate thereof according to claim 1.

13. The medicament according to claim 11 which is used for preventive and/or therapeutic treatment of a disease caused by tau protein kinase 1 hyperactivity.

14. The medicament according to claim 11 which is used for preventive and/or therapeutic treatment of a neurodegenerative disease.

15. The medicament according to claim 14, wherein the neurodegenerative disease is selected from the group consisting of Alzheimer disease, ischemic cerebrovascular accidents, Down syndrome, cerebral bleeding due to cerebral amyloid angiopathy, progressive supranuclear palsy, subacute sclerosing panencephalitic parkinsonism, postencephalitic parkinsonism, pugilistic

encephalitis, Guam parkinsonism-dementia complex, Lewy body disease, Pick's disease, corticobasal degeneration, frontotemporal dementia, vascular dementia, traumatic injuries, brain and spinal cord trauma, peripheral neuropathies, retinopathies, and glaucoma.

16. The medicament according to claim 11, wherein the disease is selected from the group consisting of non-insulin dependent diabetes, obesity, manic depressive illness, schizophrenia, alopecia, breast cancer, non-small cell lung carcinoma, thyroid cancer, T or B-cell leukemia, and a virus-induced tumor.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP2004/004320

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07D239/47 C07D401/14 C07D405/14 C07D409/14 C07D413/14
C07D417/14 C07D403/14 A61K31/513 A61K31/5377 A61P25/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C07D A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BEILSTEIN Data, WPI Data, PAJ, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 136 482 A (SANOFI SYNTHELABO ; MITSUBISHI TOKYO PHARMACEUTICA (JP)) 26 September 2001 (2001-09-26) cited in the application paragraphs '0002!, '0006!; example 38; tables 1,2,4,8-12	1-16
P,A	WO 03/027080 A (SANOFI SYNTHELABO ; HIKI SHINSUKE (JP); SHODA AYA (JP); ARITOMO KEIICH) 3 April 2003 (2003-04-03) page 104, line 9 - line 25; claims 1,2,10-25; examples C401-C499,C601-C651,C751-C768,D026-D050	1-16

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
1 July 2004	12/07/2004

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Hanisch, I

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	WO 03/037888 A (SANOFI SYNTHELABO ; HIKI SHINSUKE (JP); SHODA AYA (JP); ARITOMO KEIICH) 8 May 2003 (2003-05-08) page 9, line 21 - page 10, line 10; claims 1,2,11-13,15-25; examples C001-C099,C201-C251,C351-C368,C388,D001-D025	1-16

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/JP2004/004320

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 1136482	A	26-09-2001	EP	1136482 A1	26-09-2001
			AU	8148701 A	03-10-2001
			CA	2401241 A1	27-09-2001
			CN	1419552 T	21-05-2003
			WO	0170729 A1	27-09-2001
			EP	1276738 A1	22-01-2003
			JP	2003528095 T	24-09-2003
			US	2003187004 A1	02-10-2003
WO 03027080	A	03-04-2003	CA	2460121 A1	08-05-2003
			CA	2460177 A1	03-04-2003
			EP	1427709 A1	16-06-2004
			EP	1427720 A1	16-06-2004
			WO	03027080 A1	03-04-2003
			WO	03037888 A1	08-05-2003
WO 03037888	A	08-05-2003	CA	2460121 A1	08-05-2003
			CA	2460177 A1	03-04-2003
			EP	1427709 A1	16-06-2004
			EP	1427720 A1	16-06-2004
			WO	03027080 A1	03-04-2003
			WO	03037888 A1	08-05-2003